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Walls

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(45) **Date of Patent: May 10, 2016**

(54) **SYSTEMS AND METHODS FOR A TOKEN MATCH GAME**

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(21) Appl. No.: **14/182,026**

(22) Filed: **Feb. 17, 2014**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(51) **Int. Cl.**
A63F 13/00 (2014.01)
A63F 13/40 (2014.01)

(52) **U.S. Cl.**
CPC ***A63F 13/005*** (2013.01); ***A63F 13/10*** (2013.01); *A63F 2300/308* (2013.01); *A63F 2300/6036* (2013.01); *A63F 2300/61* (2013.01)

(58) **Field of Classification Search**
USPC 463/7, 8, 9, 10
See application file for complete search history.

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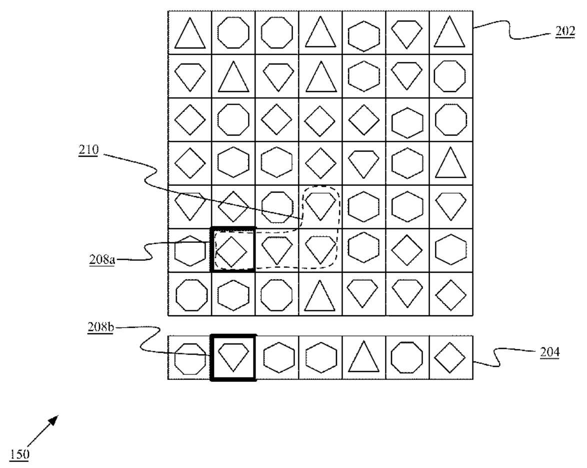
Assistant Examiner — Brandon Gray
(74) *Attorney, Agent, or Firm* — Daniel Rose; Christopher J. McKenna; Foley & Lardner LLP

(57) **ABSTRACT**

An m×l array of randomly selected tokens may be provided as a playing field, and a second n×l array of randomly selected tokens may be provided as a hand. The player may select a cell within the m×l array to replace the token in said cell with a token in a corresponding cell of the n×l array. If the replacement results in a region of adjacent identical tokens in the m×l array, the tokens may be removed and the player's score incremented. If no plays are possible from the player's hand, the player may draw a new hand of randomly selected tokens to replace the tokens and/or blank spaces in the n×l array. Play continues until the player has exhausted a predetermined number of opportunities to draw a new hand.

20 Claims, 58 Drawing Sheets



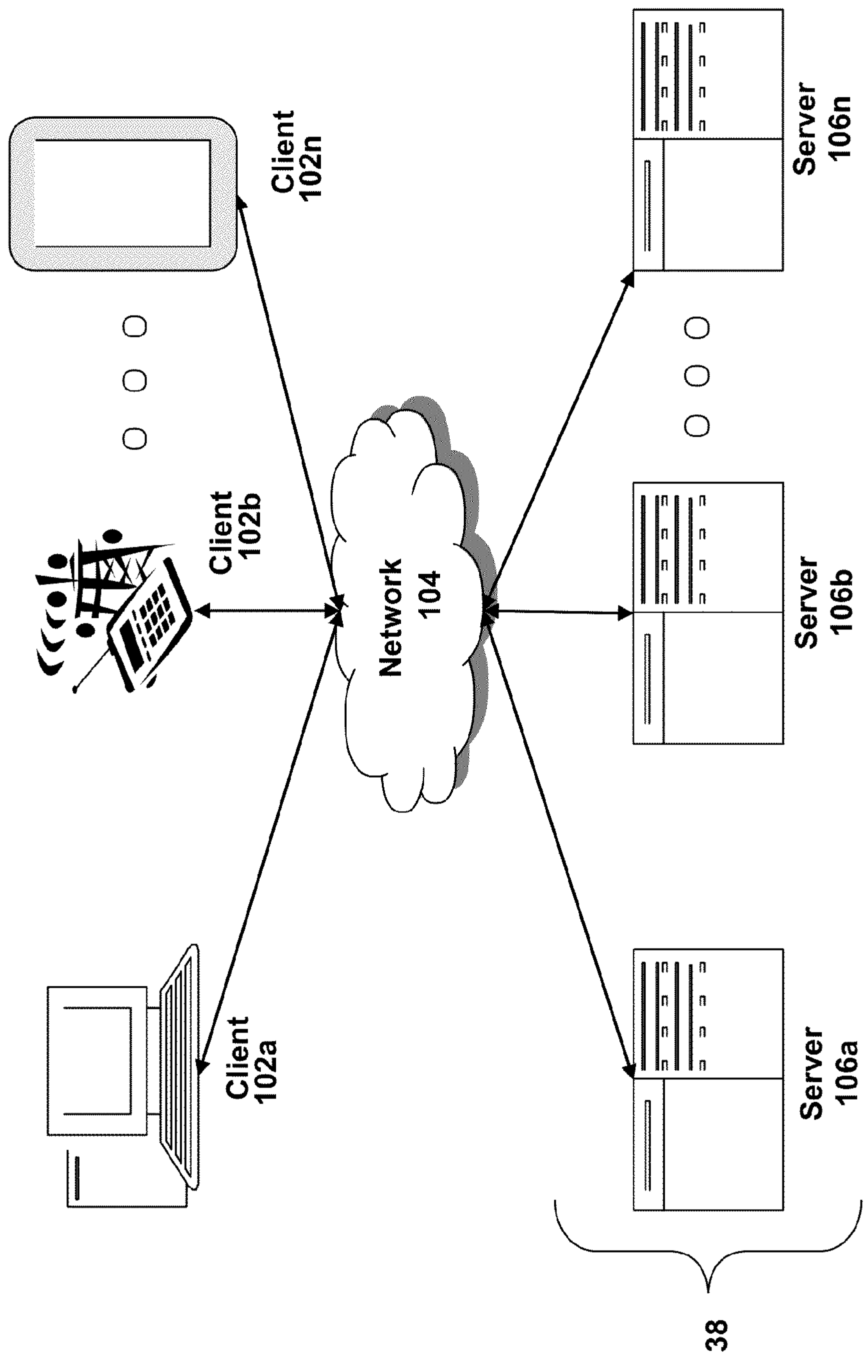

Client 102a
Client 102b
Client 102n
Network 104
Server 106a
Server 106b
Server 106n
38

Fig. 1A

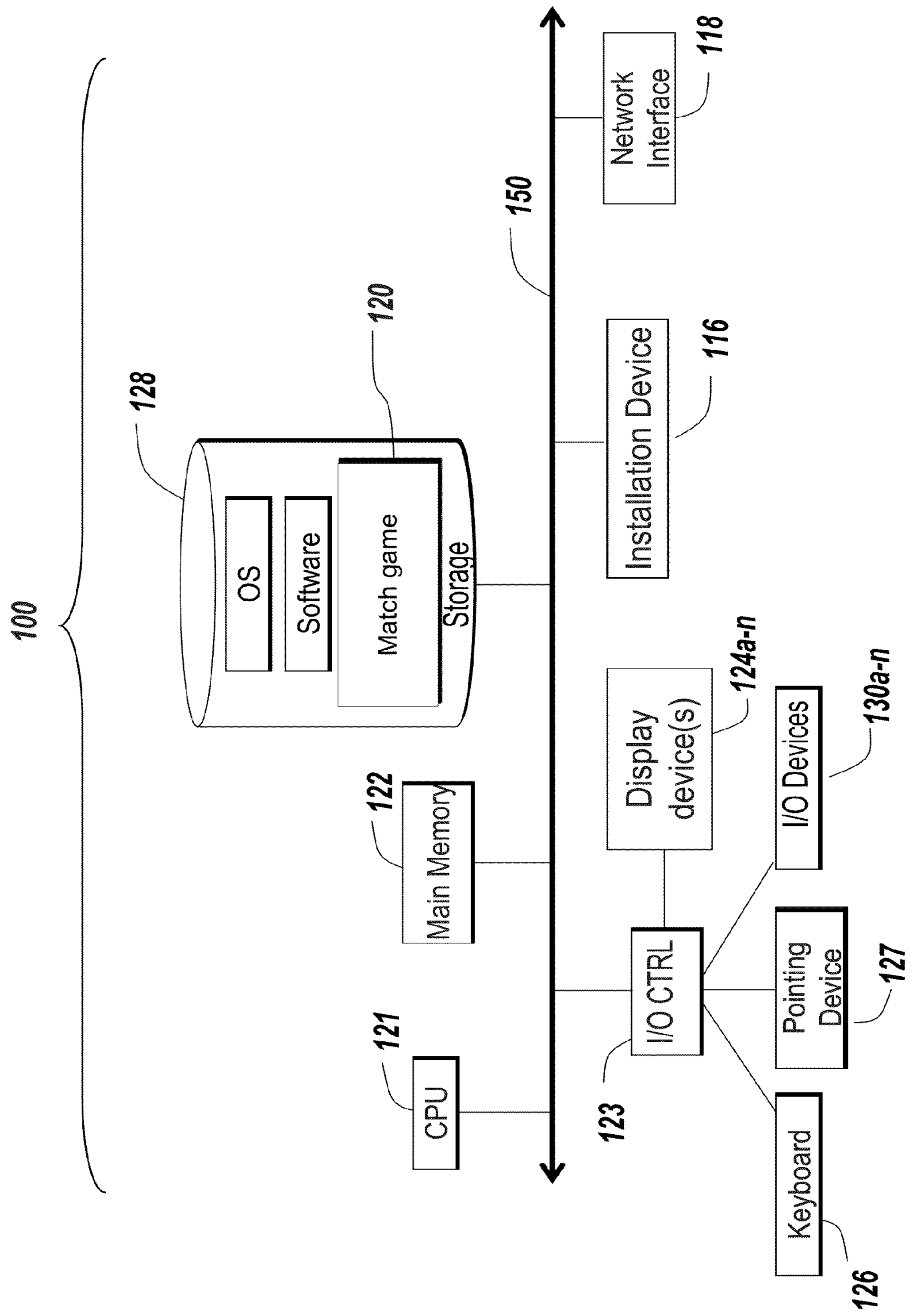

100
CPU
121
Main Memory
122
OS
Software
Match game
Storage
128
120
150
Network Interface
118
Installation Device
116
Display device(s)
124a-n
I/O CTRL
123
I/O Devices
130a-n
Pointing Device
127
Keyboard
126

Fig. 1B

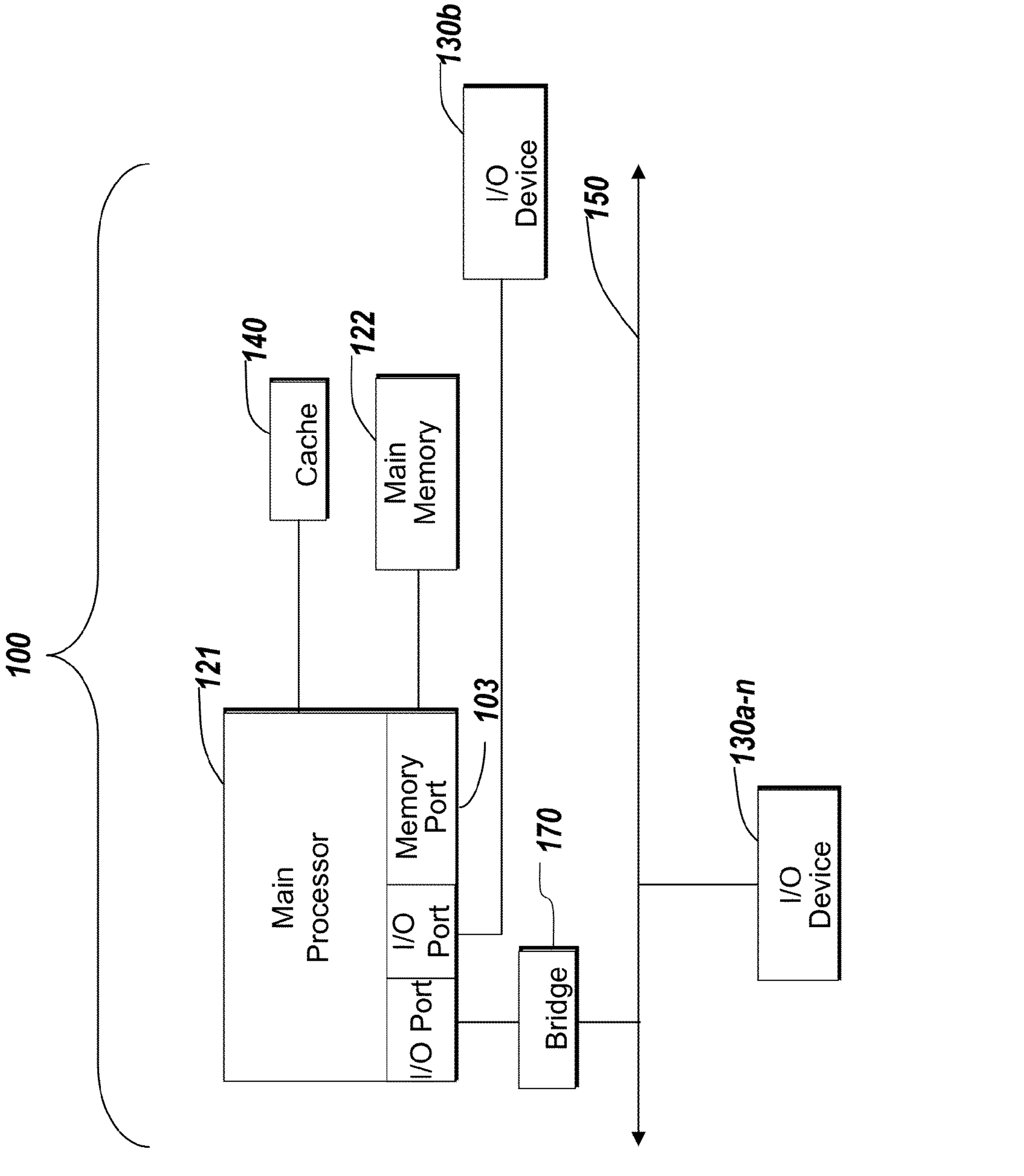

100
121
Main Processor
Memory Port
103
I/O Port
I/O Port
140
Cache
122
Main Memory
130b
I/O Device
150
170
Bridge
130a-n
I/O Device

Fig. 1C

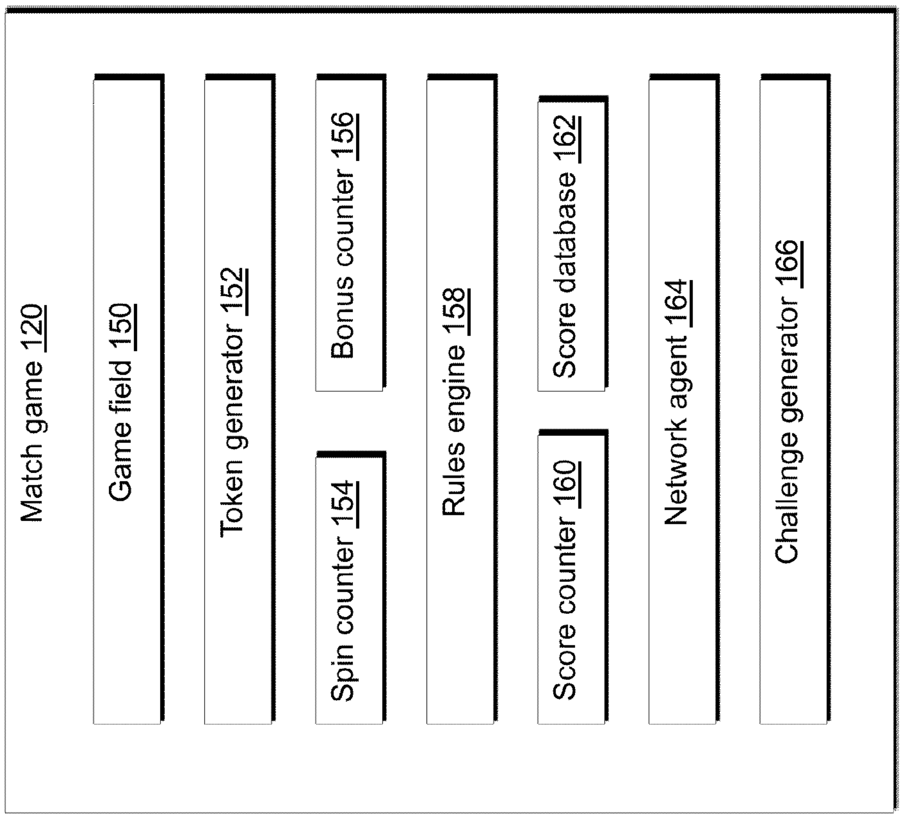

Match game 120
Game field 150
Token generator 152
Spin counter 154
Bonus counter 156
Rules engine 158
Score counter 160
Score database 162
Network agent 164
Challenge generator 166

Fig. 1D

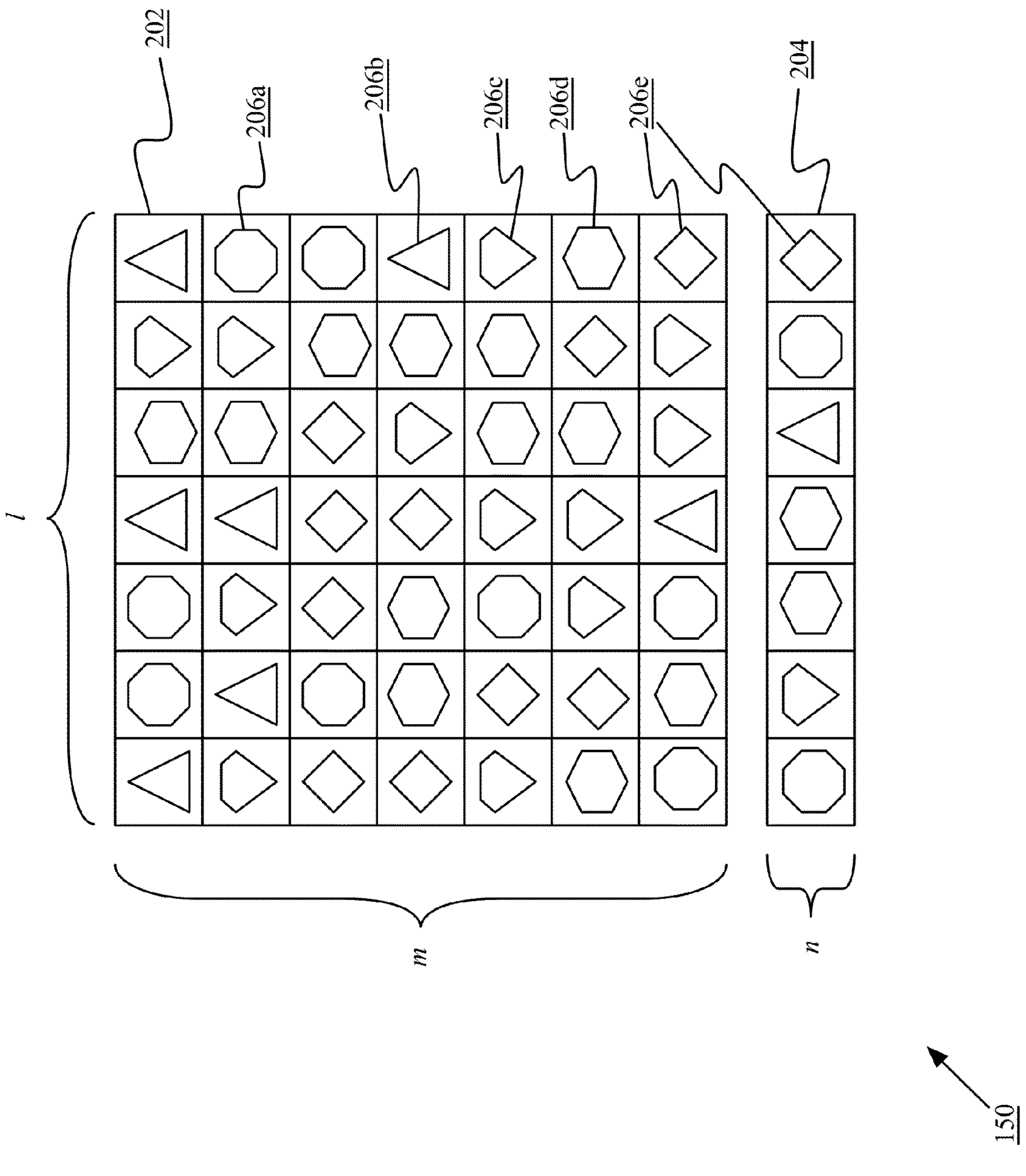


Fig. 2A

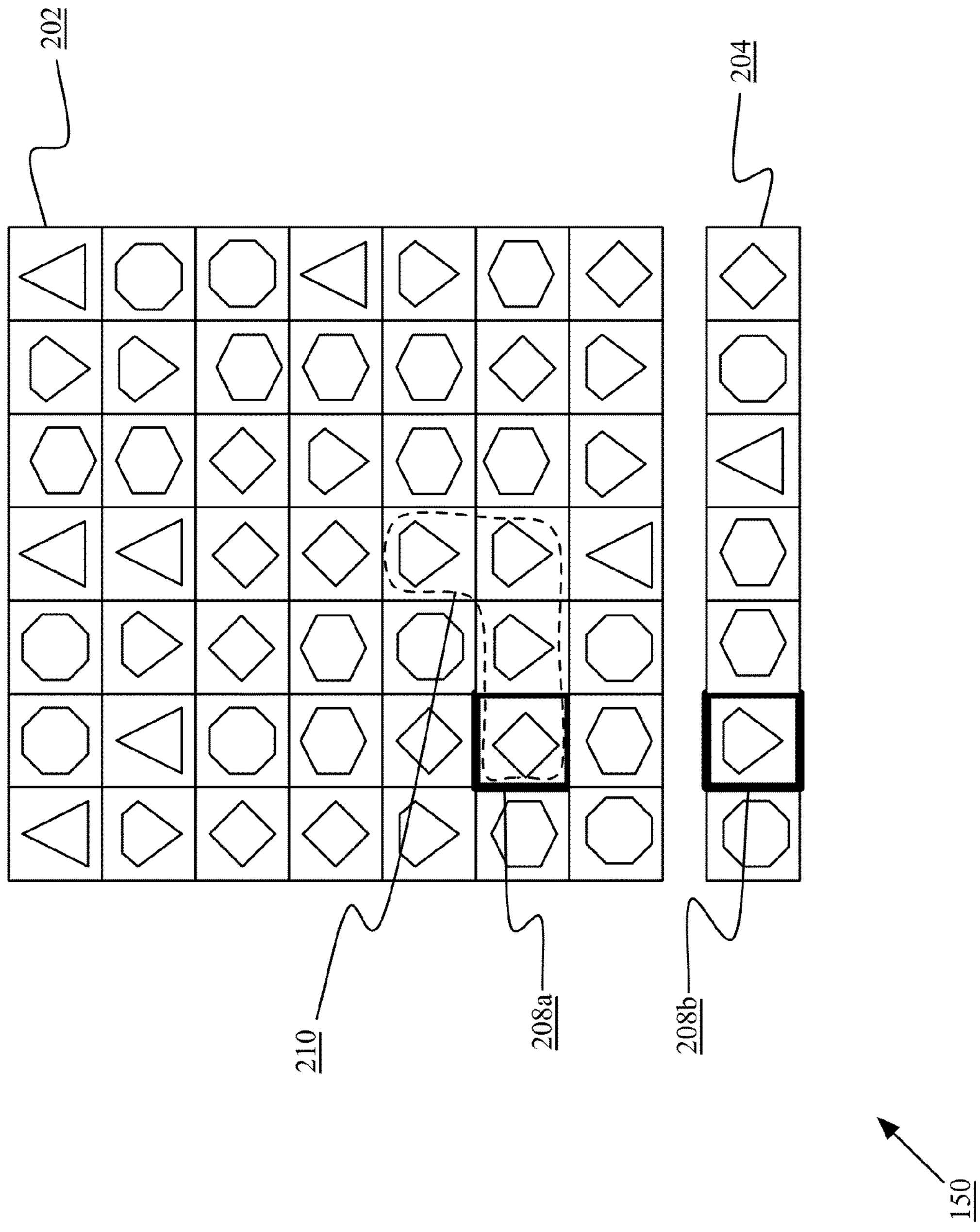


Fig. 2B

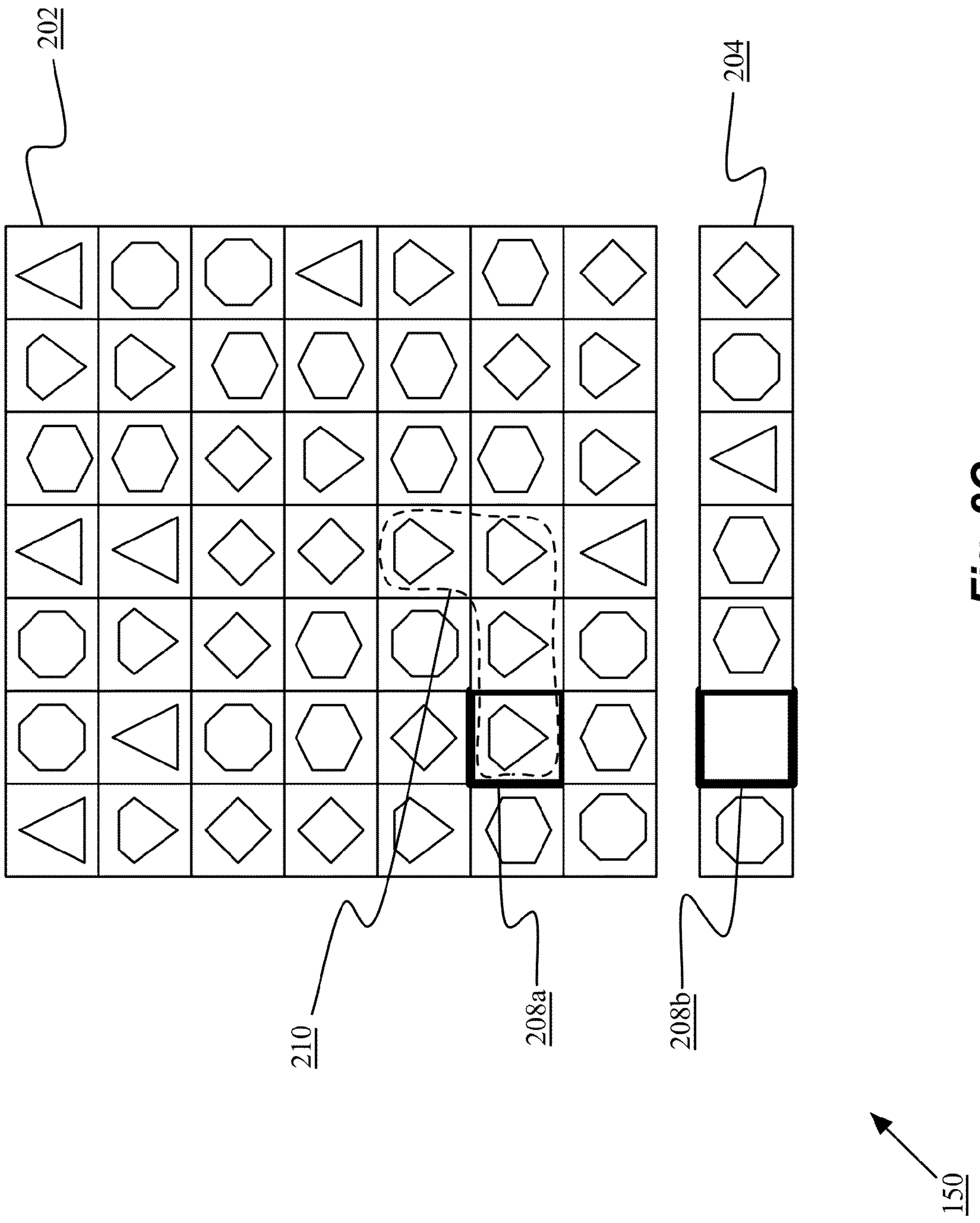


Fig. 2C

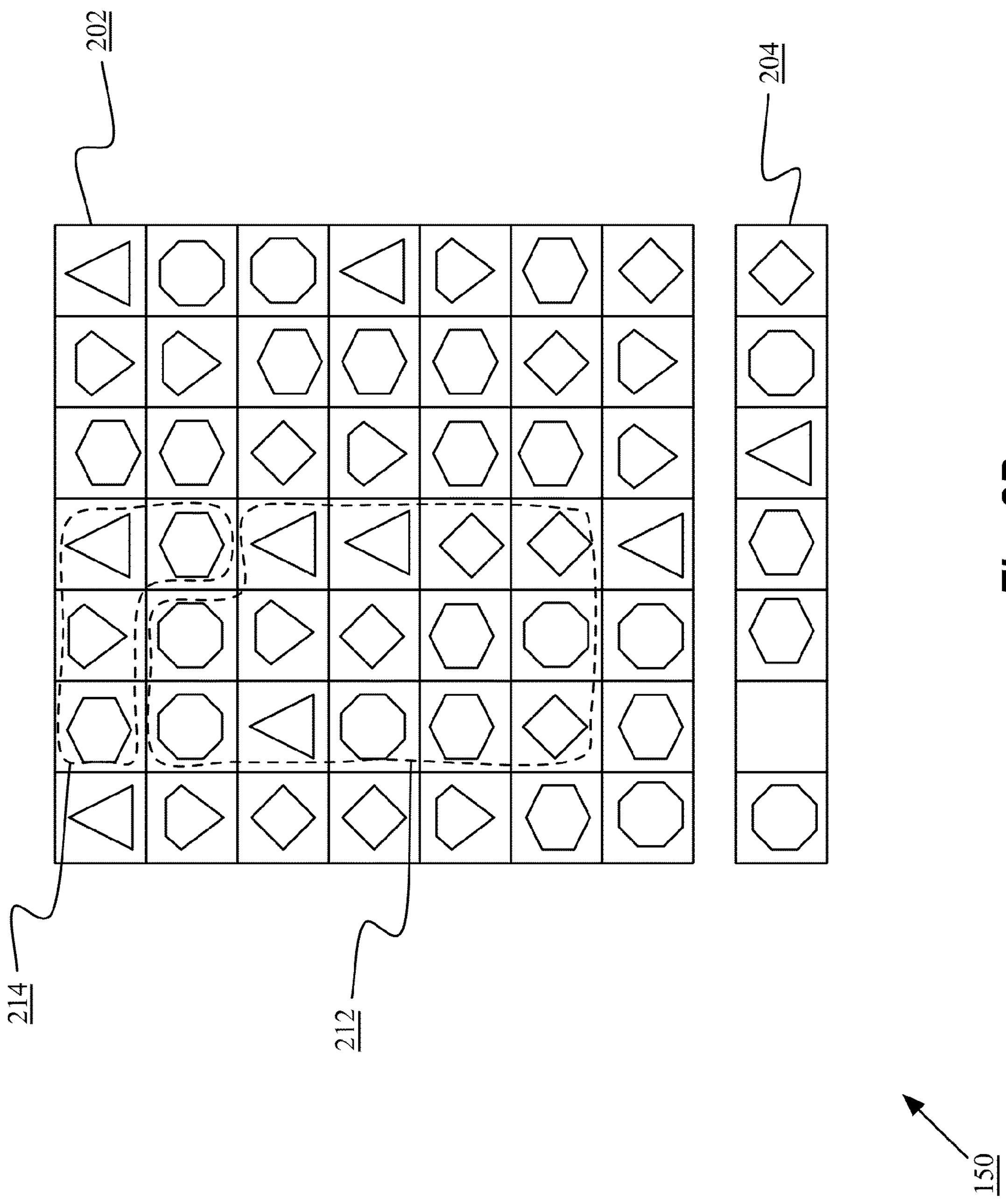


Fig. 2D

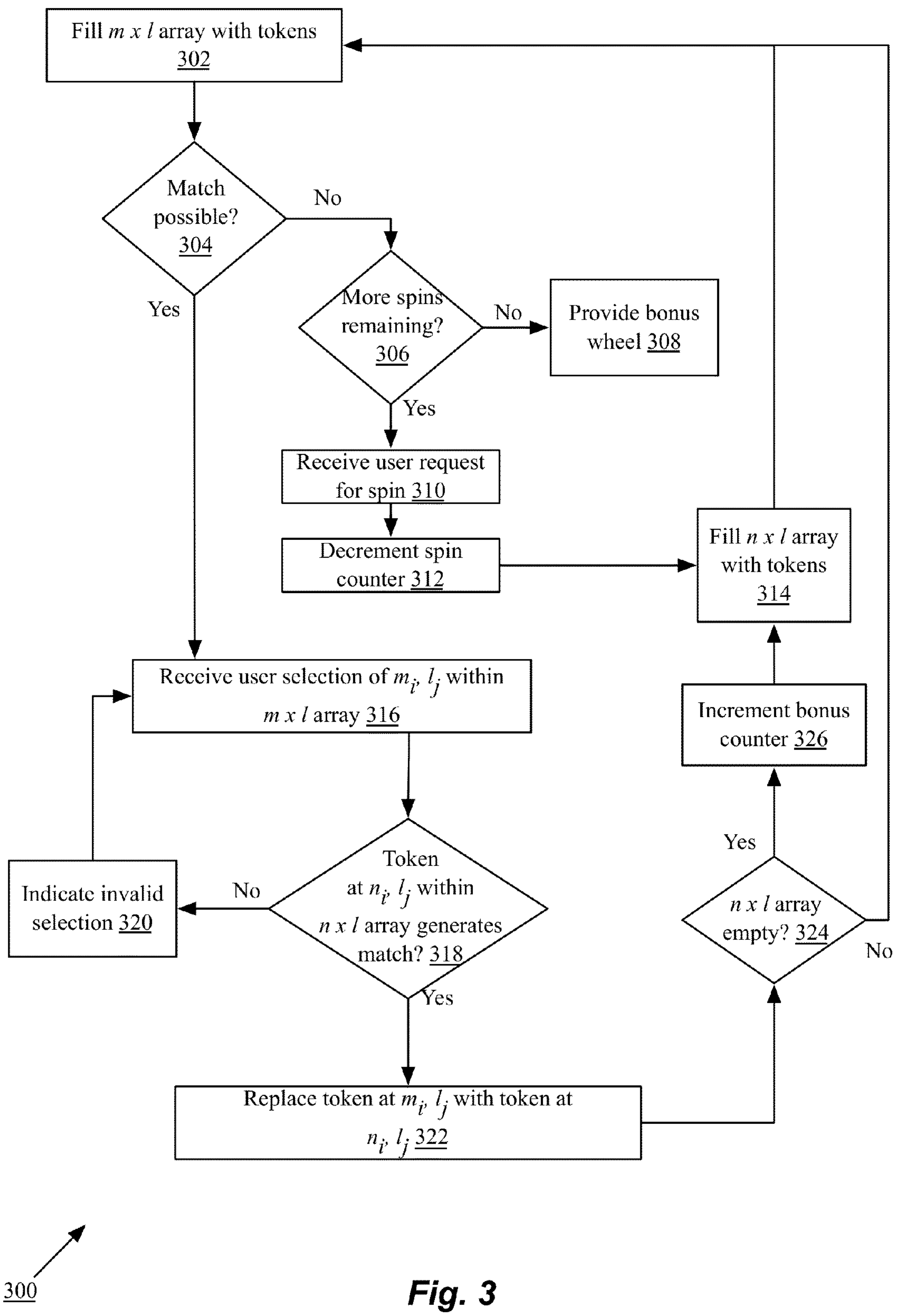
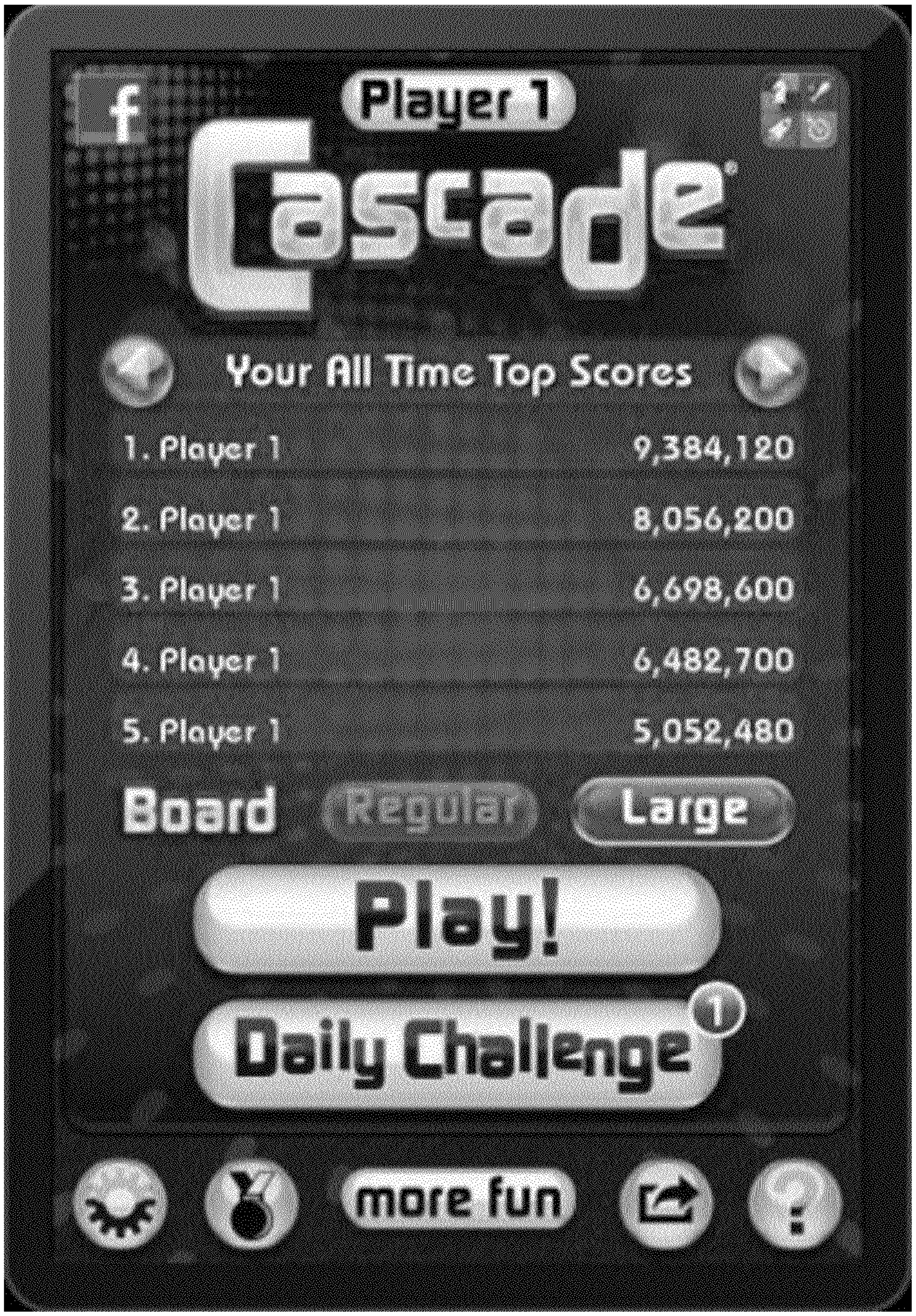

Fill m x l array with tokens 302
Match possible? 304
No
Yes
More spins remaining? 306
No
Provide bonus wheel 308
Yes
Receive user request for spin 310
Decrement spin counter 312
Fill n x l array with tokens 314
Receive user selection of m_i, l_j within m x l array 316
Increment bonus counter 326
Yes
Indicate invalid selection 320
No
Token at n_i, l_j within n x l array generates match? 318
Yes
n x l array empty? 324
No
Replace token at m_i, l_j with token at n_i, l_j 322
300

Fig. 3



Your All Time Top Scores

1. Player 1	9,384,120
2. Player 1	8,056,200
3. Player 1	6,698,600
4. Player 1	6,482,700
5. Player 1	5,052,480

Fig. 4A

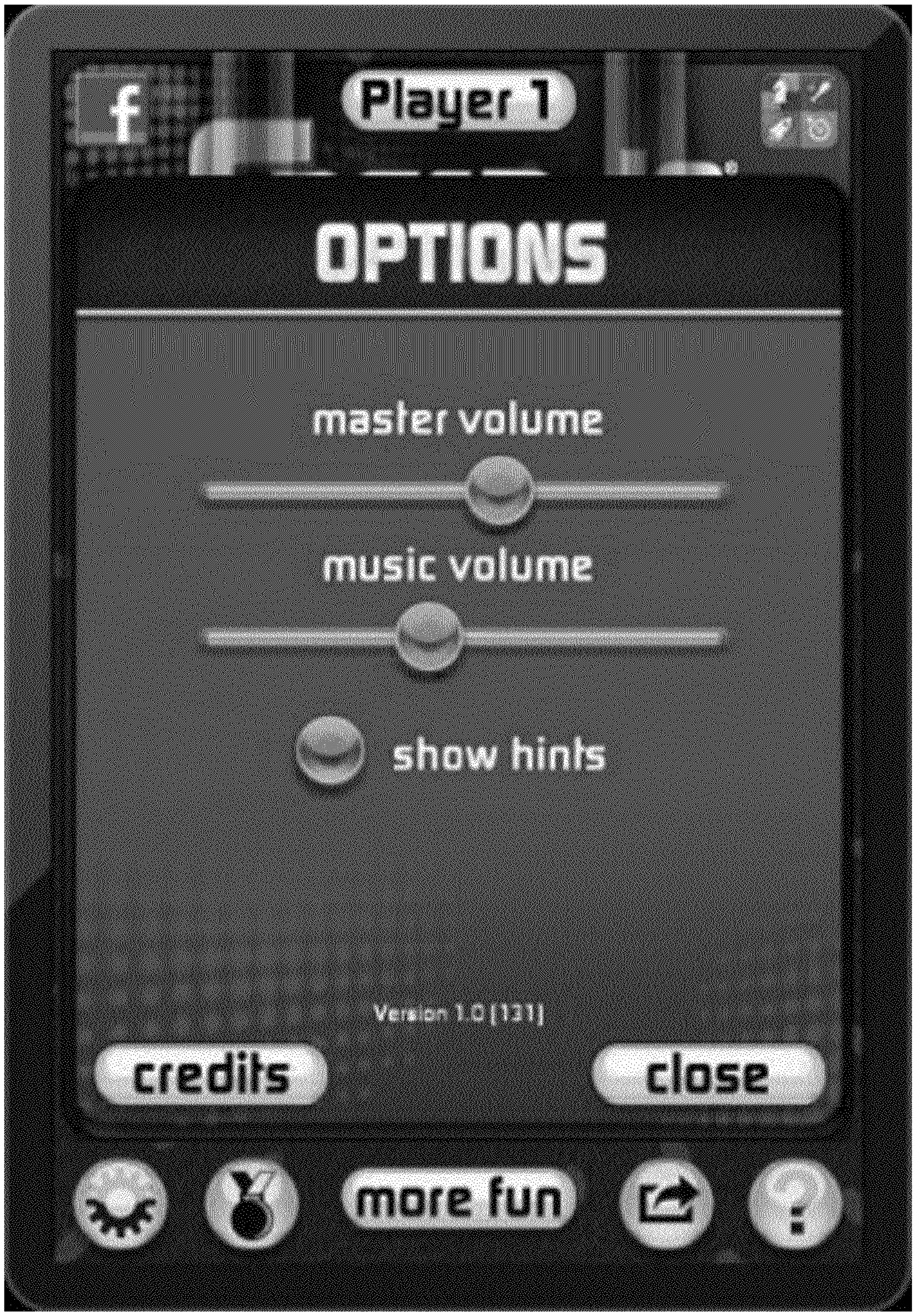
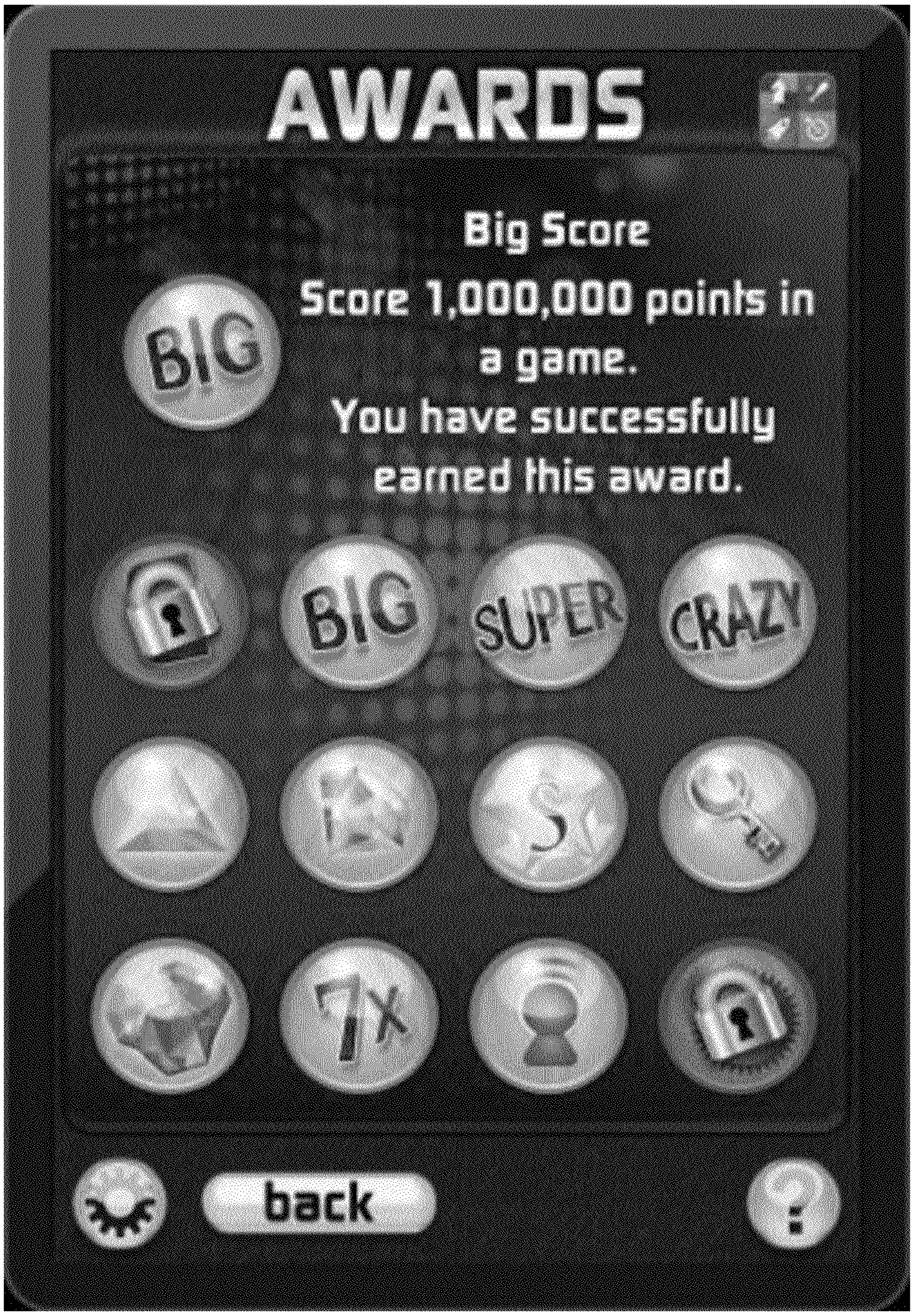
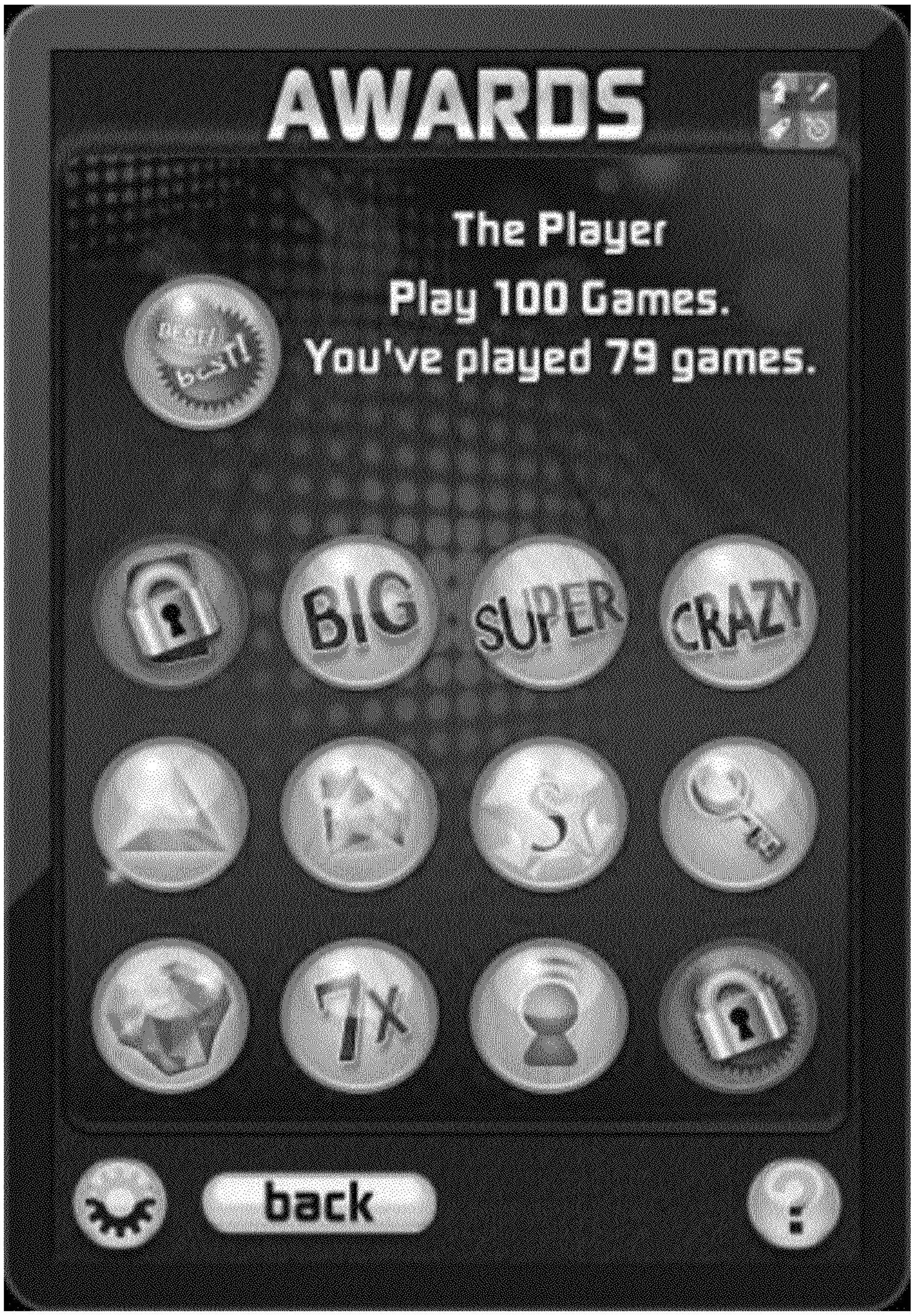

Player 1
OPTIONS
master volume
music volume
show hints
Version 1.0 [131]
credits
close
more fun

Fig. 4B



Big Score
Score 1,000,000 points in a game.
You have successfully earned this award.

Fig. 4C



The Player
Play 100 Games.
You've played 79 games.

Fig. 4D

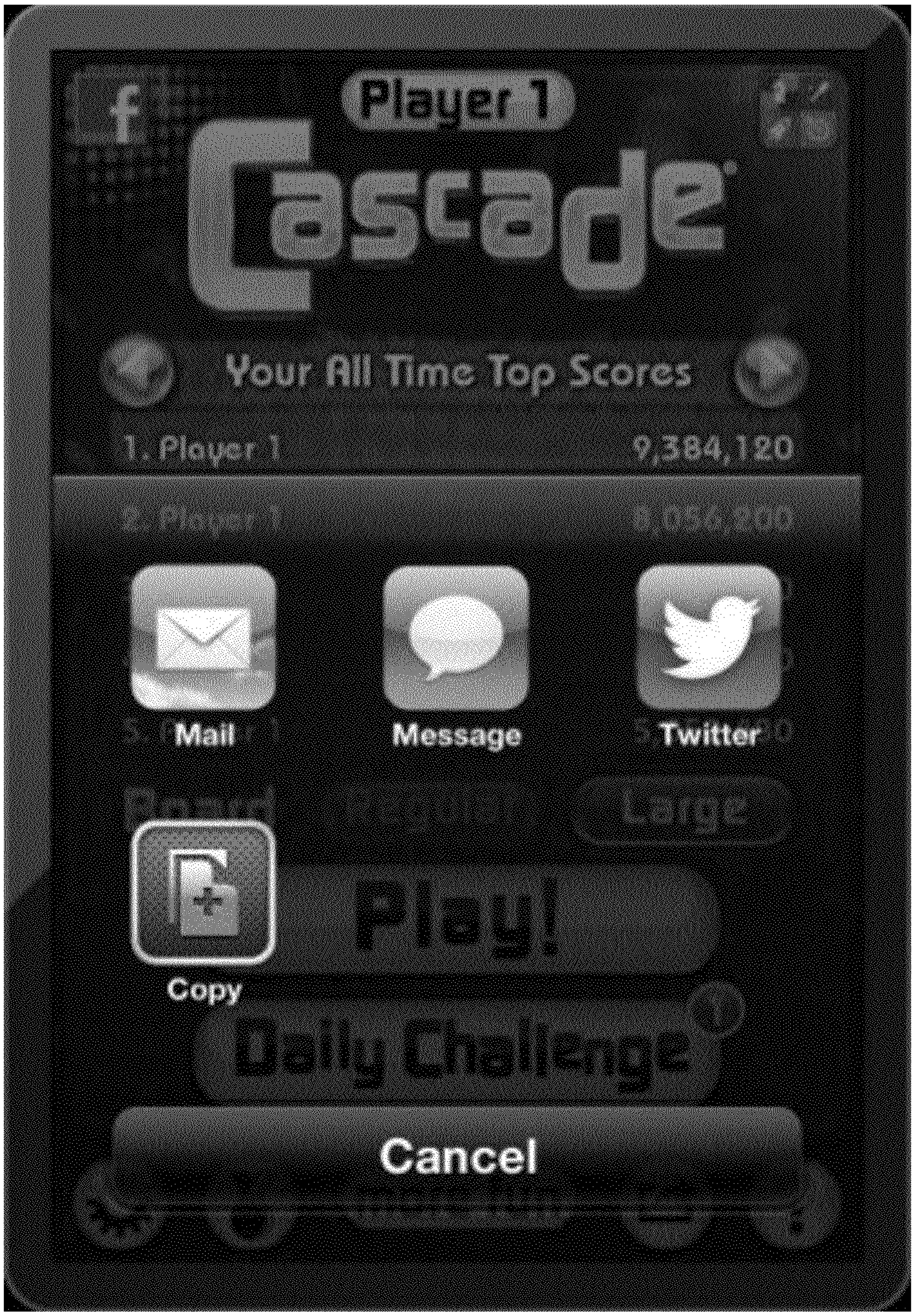

Player 1
Cascade
Your All Time Top Scores
1. Player 1 9,384,120
2. Player 1 8,056,200
Mail
Message
Twitter
Large
Copy
Play!
Daily Challenge
Cancel

Fig. 4E

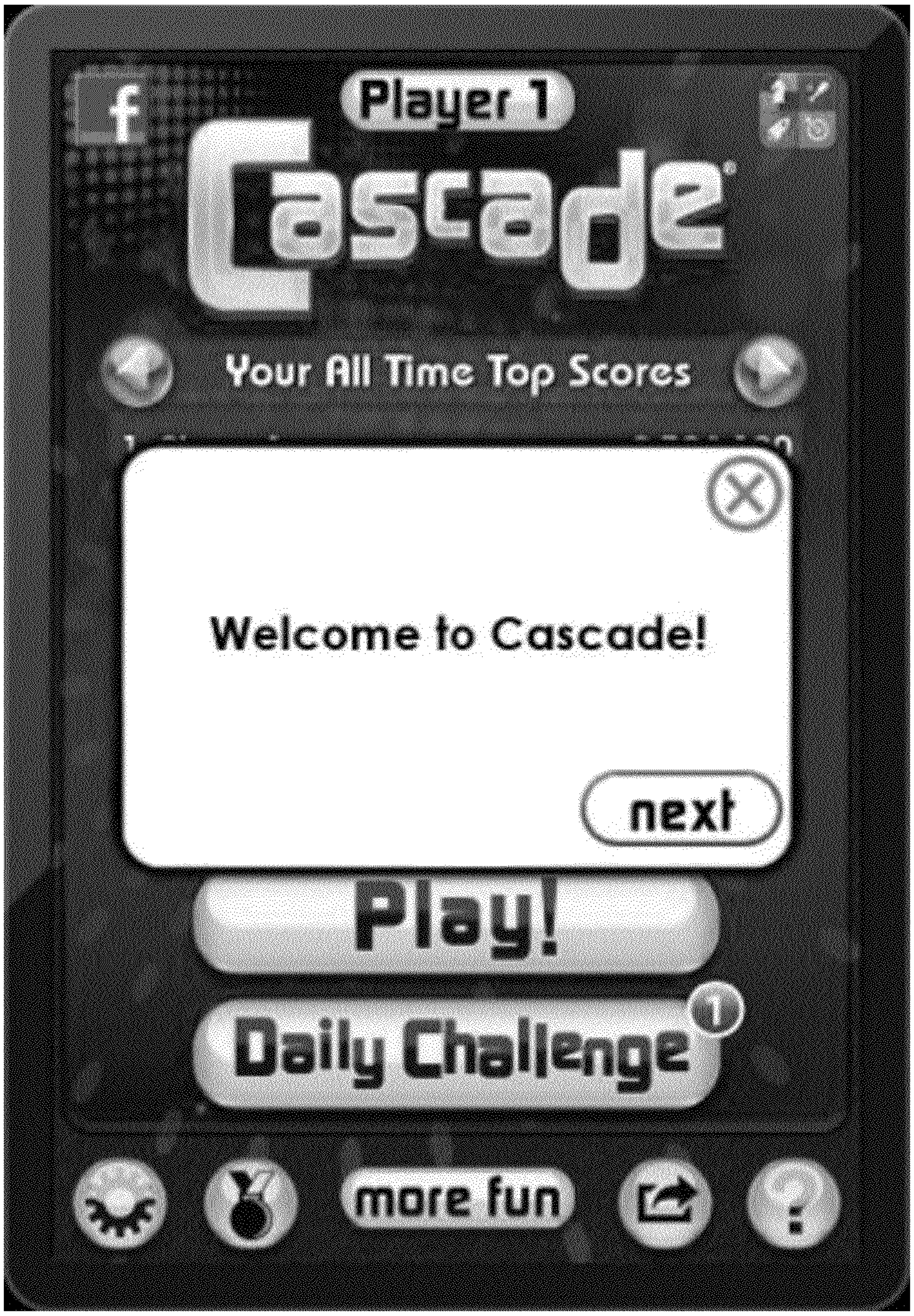
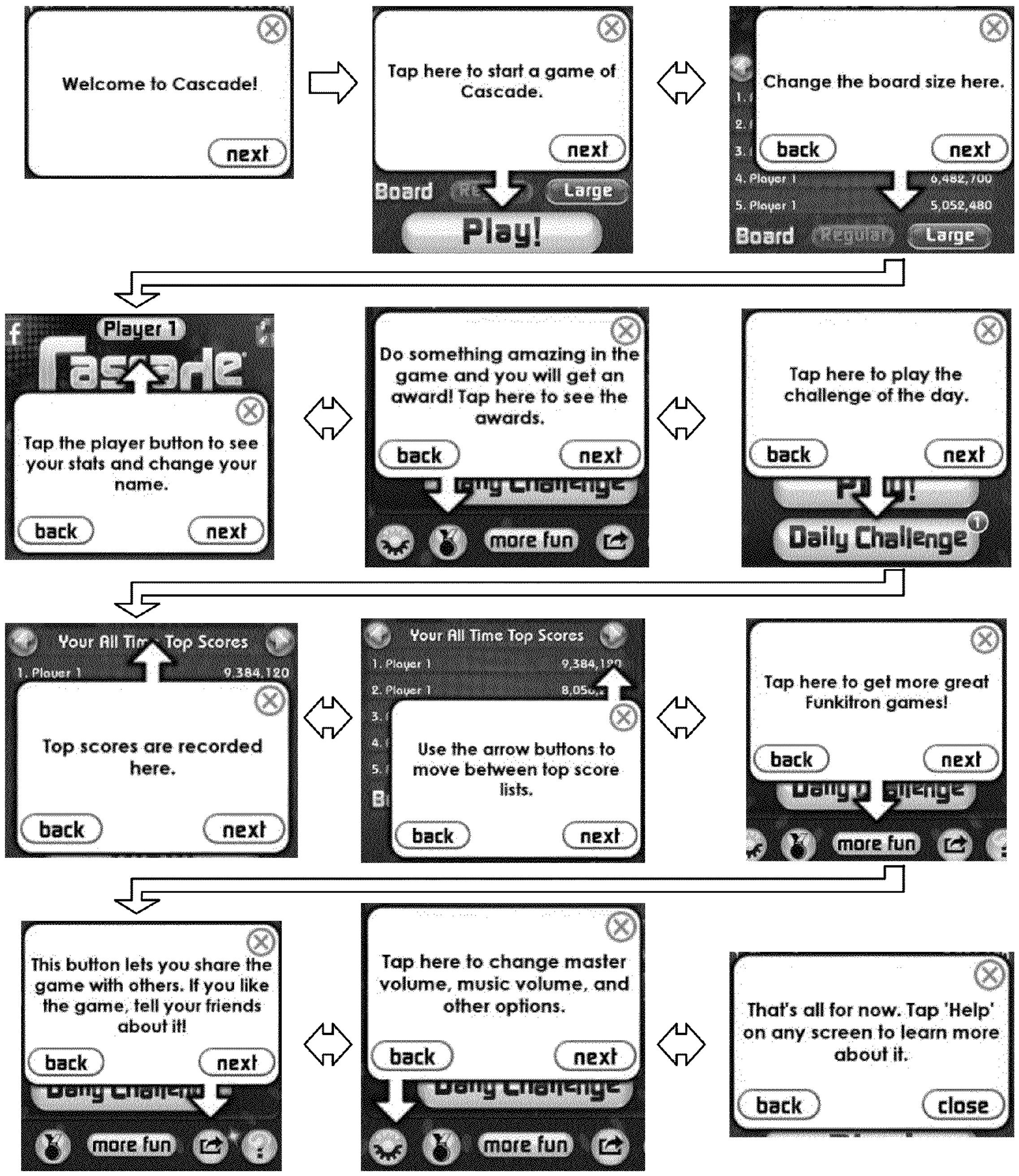

Player 1
Cascade
Your All Time Top Scores
Welcome to Cascade!
next
Play!
Daily Challenge
1
more fun

Fig. 4F


Welcome to Cascade!

Tap here to start a game of Cascade.

Change the board size here.

Tap the player button to see your stats and change your name.

Do something amazing in the game and you will get an award! Tap here to see the awards.

Tap here to play the challenge of the day.

Top scores are recorded here.

Use the arrow buttons to move between top score lists.

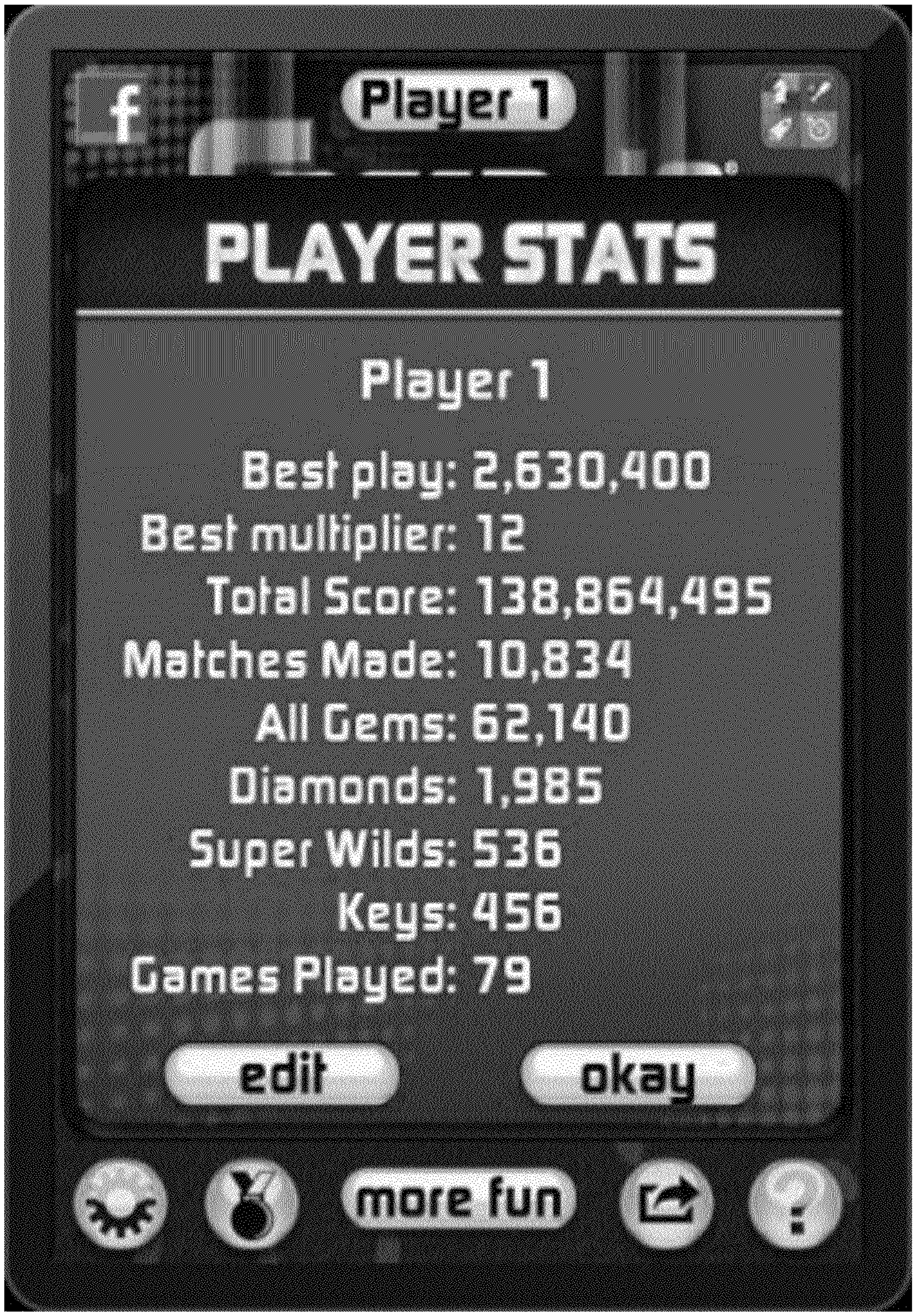
Tap here to get more great Funkitron games!

This button lets you share the game with others. If you like the game, tell your friends about it!

Tap here to change master volume, music volume, and other options.

That's all for now. Tap 'Help' on any screen to learn more about it.

Fig. 4G



PLAYER STATS

Player 1

Best play:	2,630,400
Best multiplier:	12
Total Score:	138,864,495
Matches Made:	10,834
All Gems:	62,140
Diamonds:	1,985
Super Wilds:	536
Keys:	456
Games Played:	79

Fig. 4H

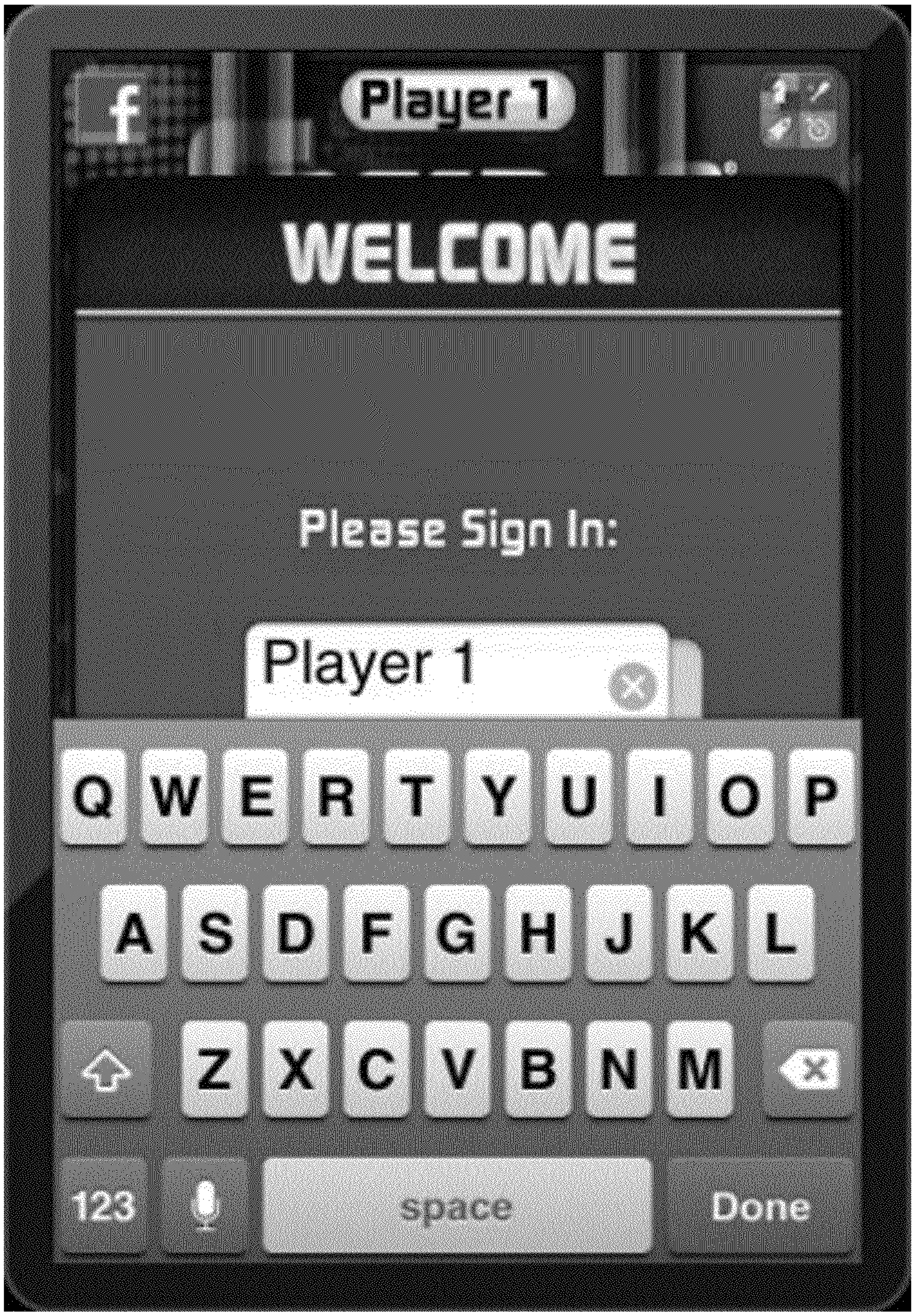
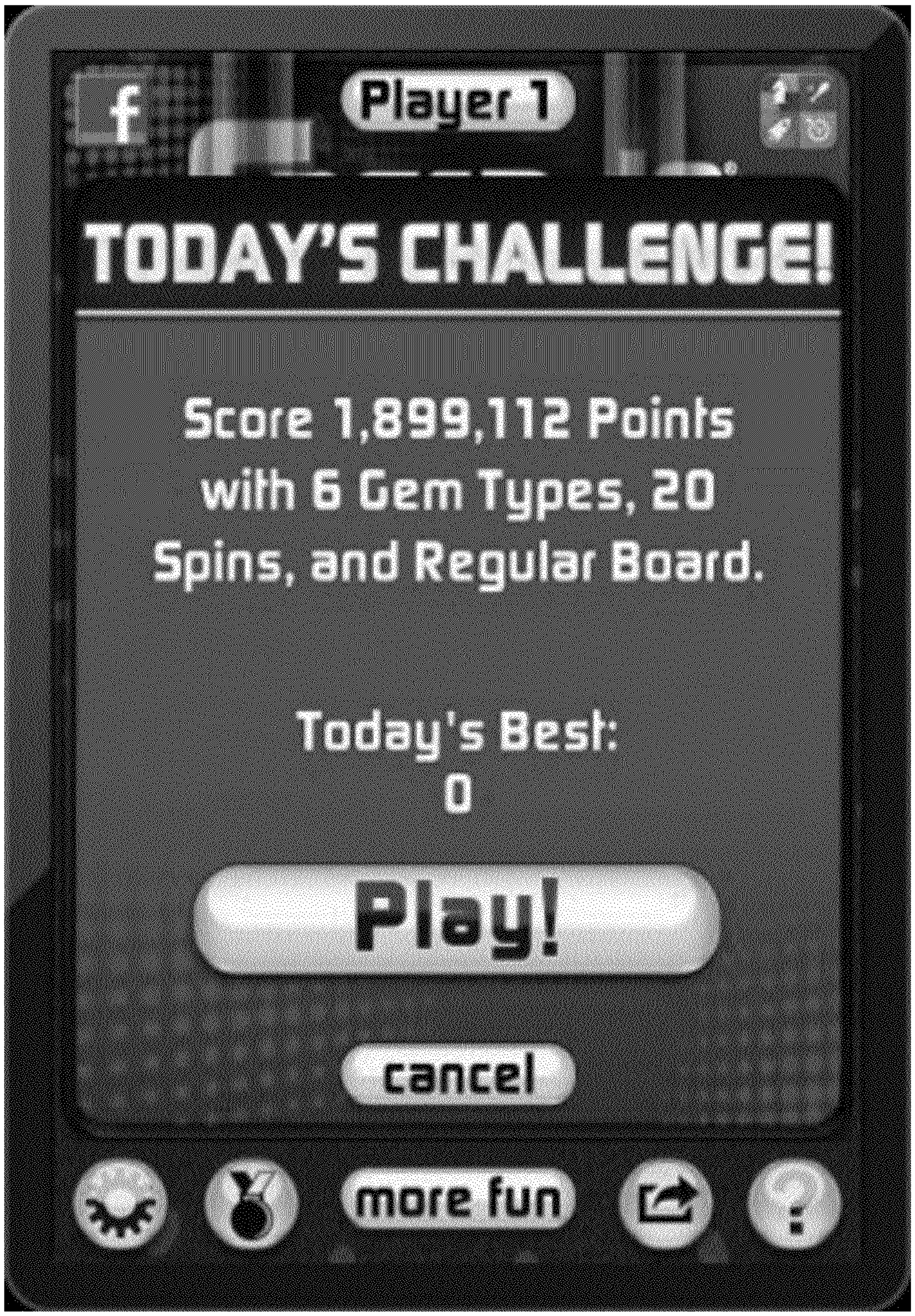

f
Player 1
WELCOME
Please Sign In:
Player 1
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
Done

Fig. 4I



Score 1,899,112 Points with 6 Gem Types, 20 Spins, and Regular Board.

Today's Best:
0

Fig. 4J

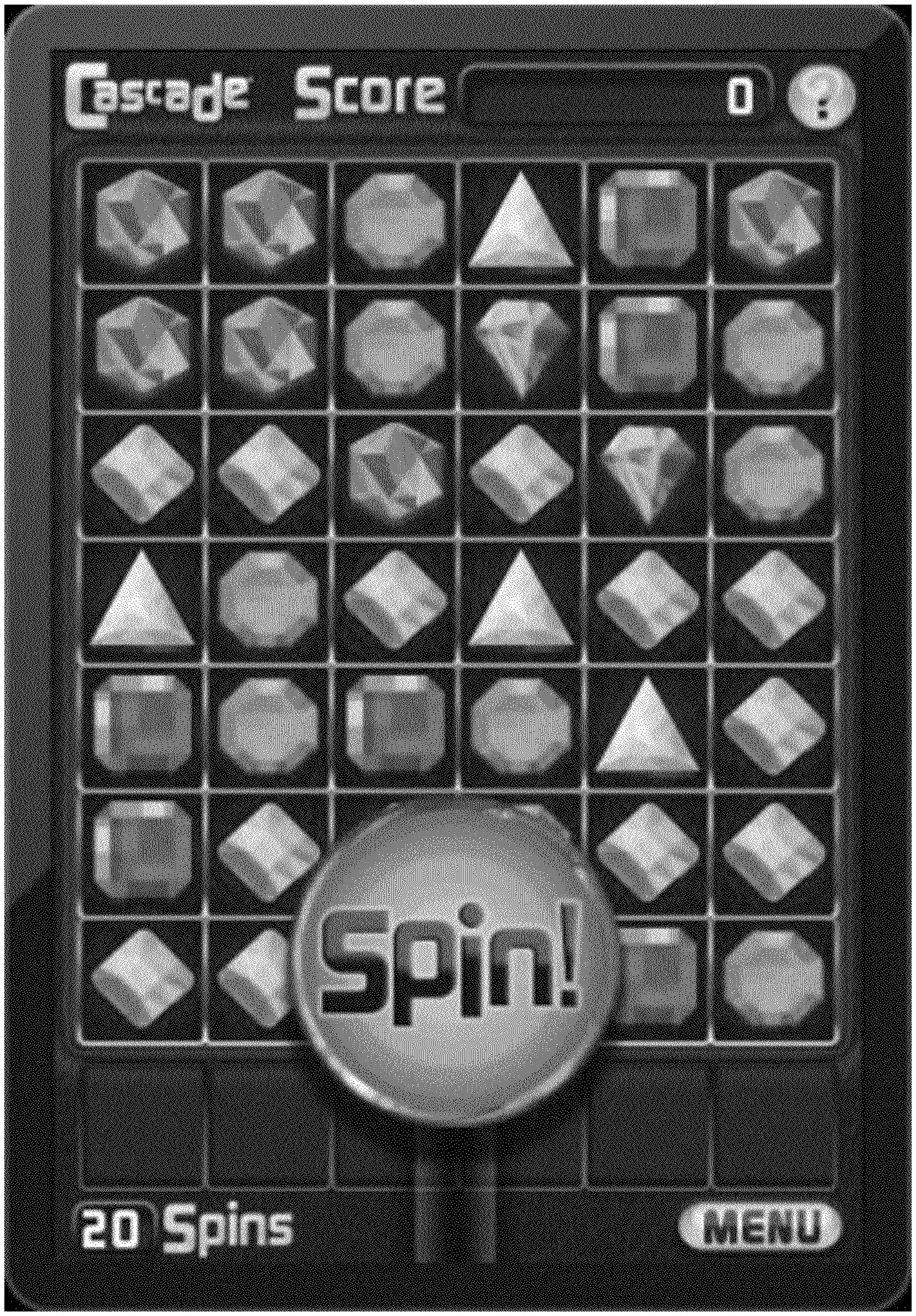


Fig. 5A

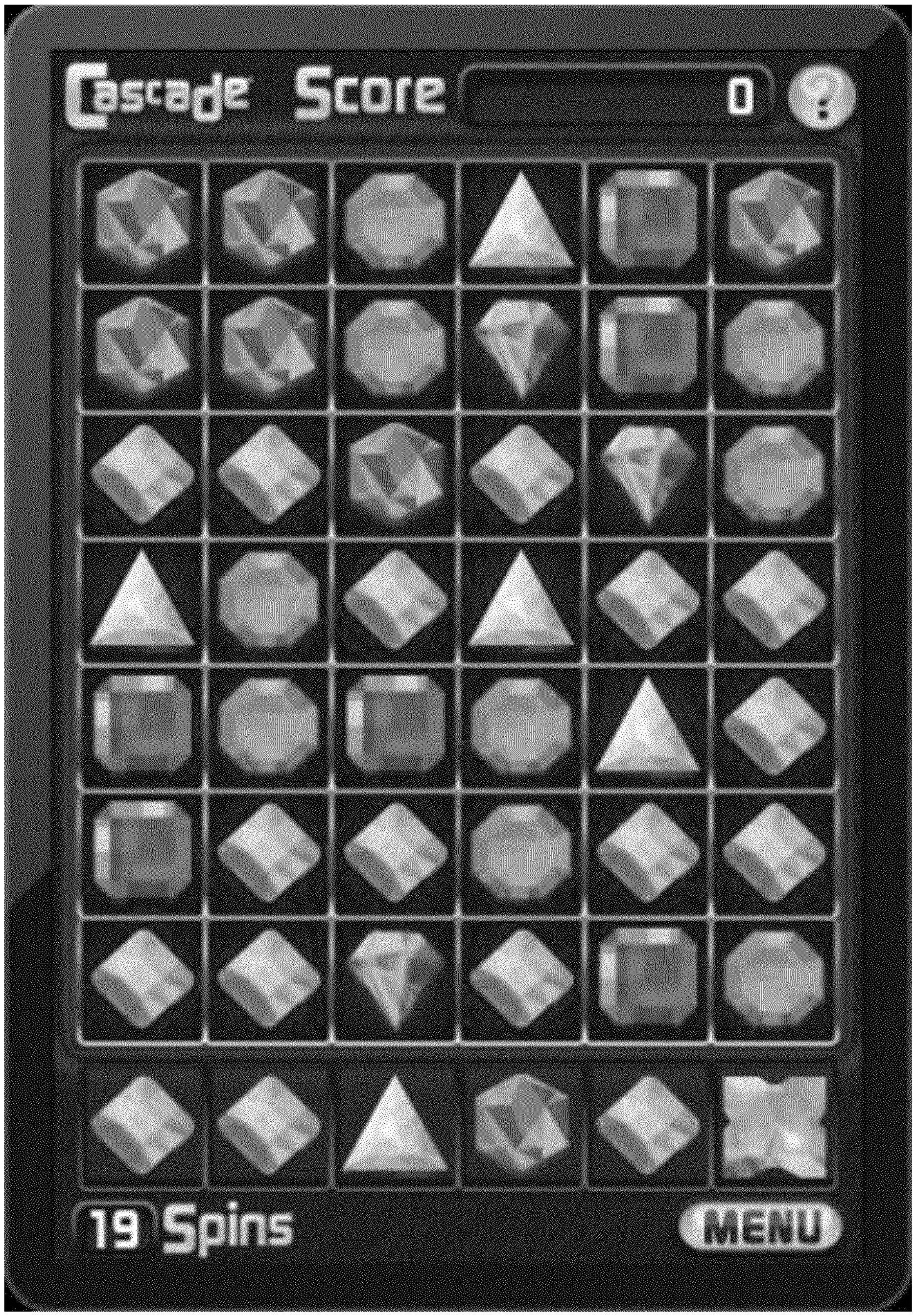


Fig. 5B

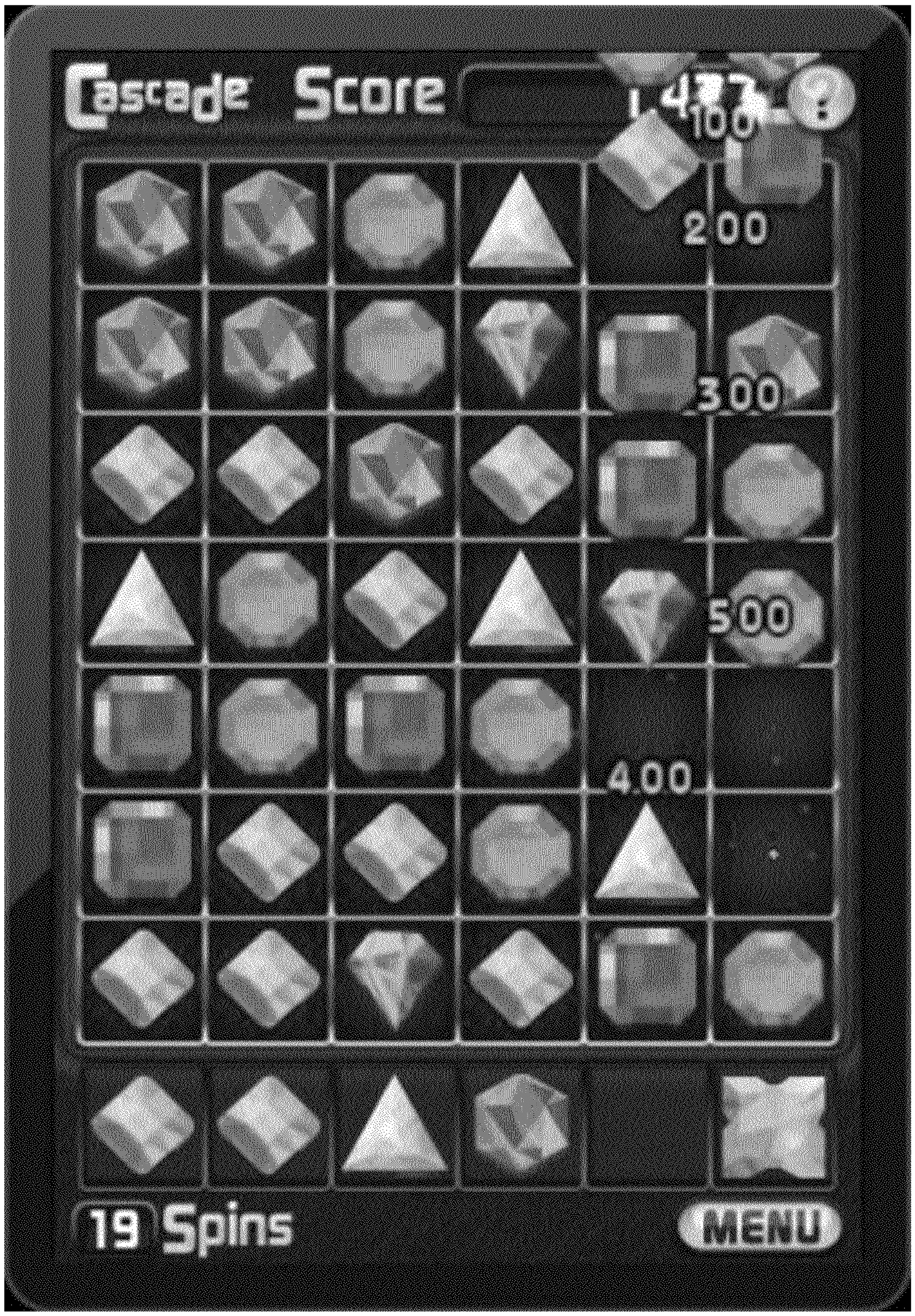


Fig. 5C

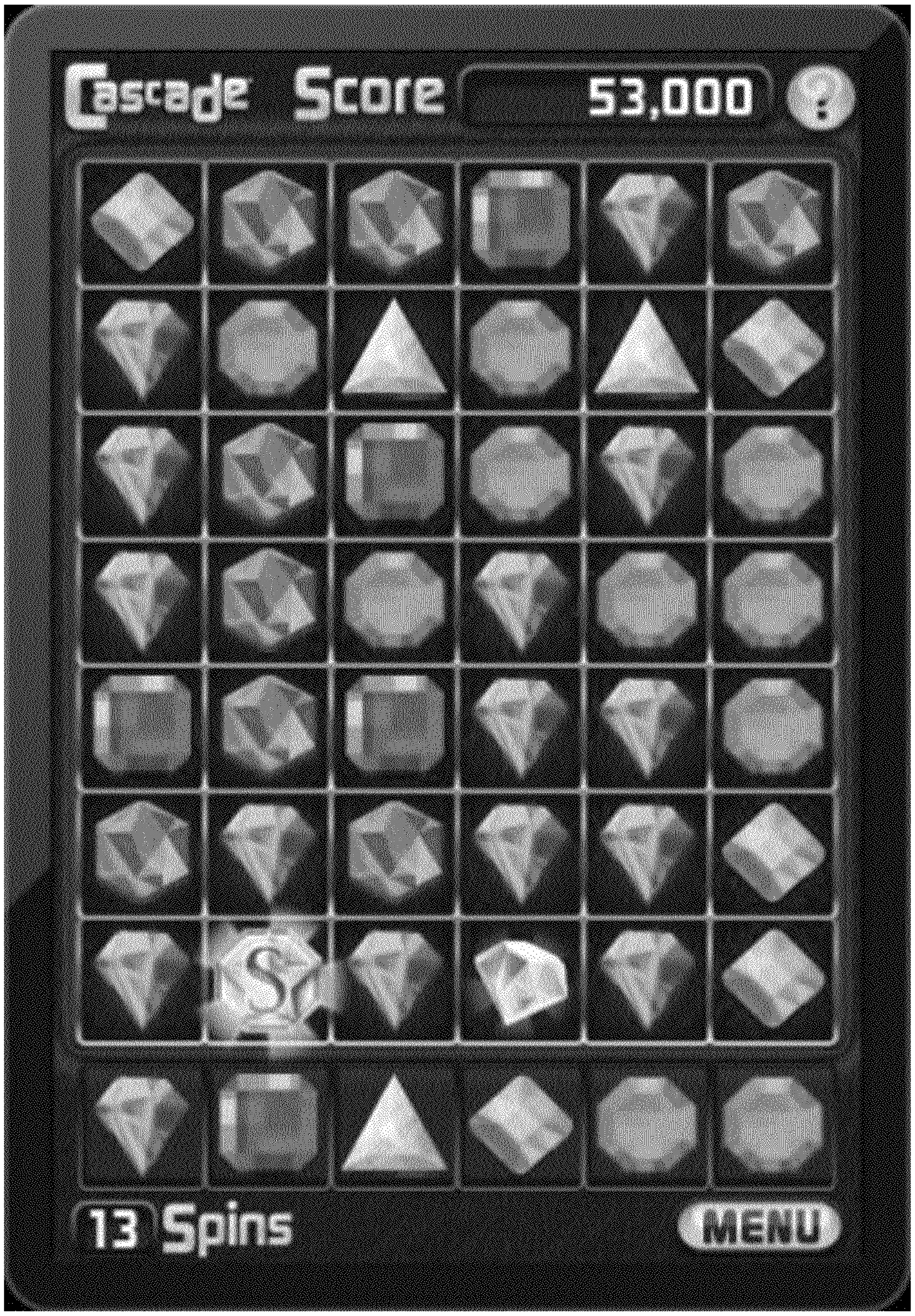


Fig. 6A

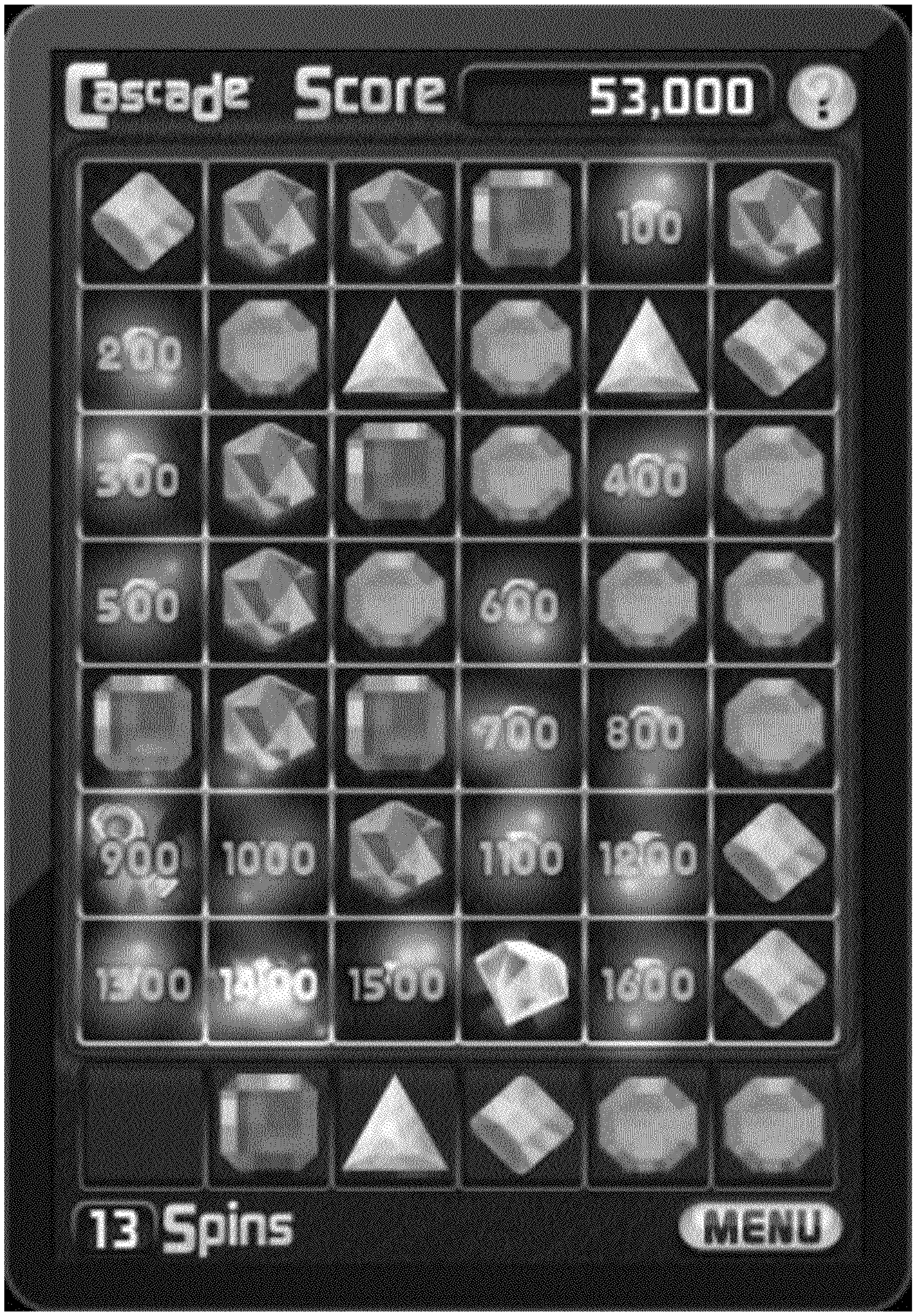

Cascade
Score
53,000
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
13 Spins
MENU

Fig. 6B

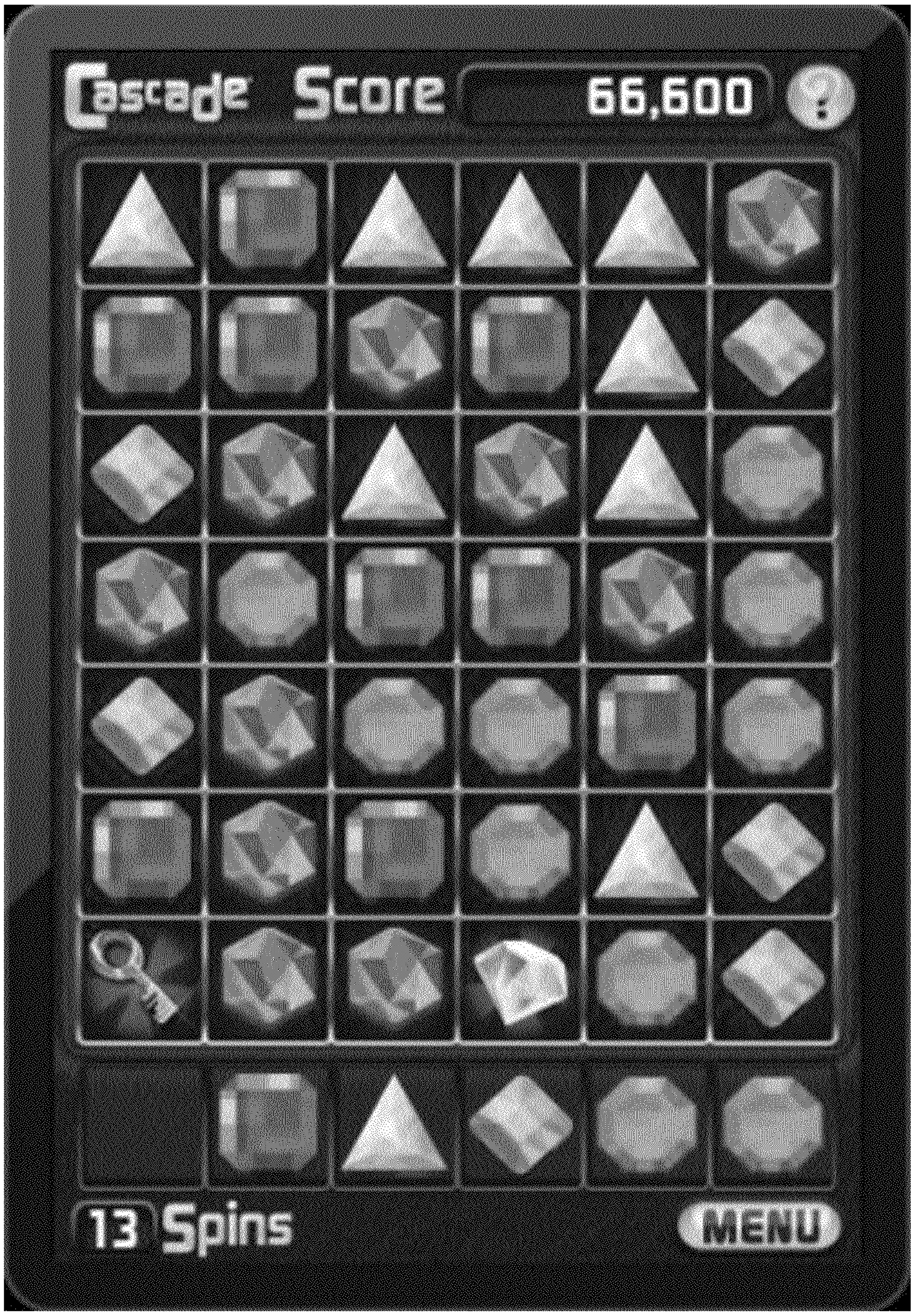


Fig. 6C

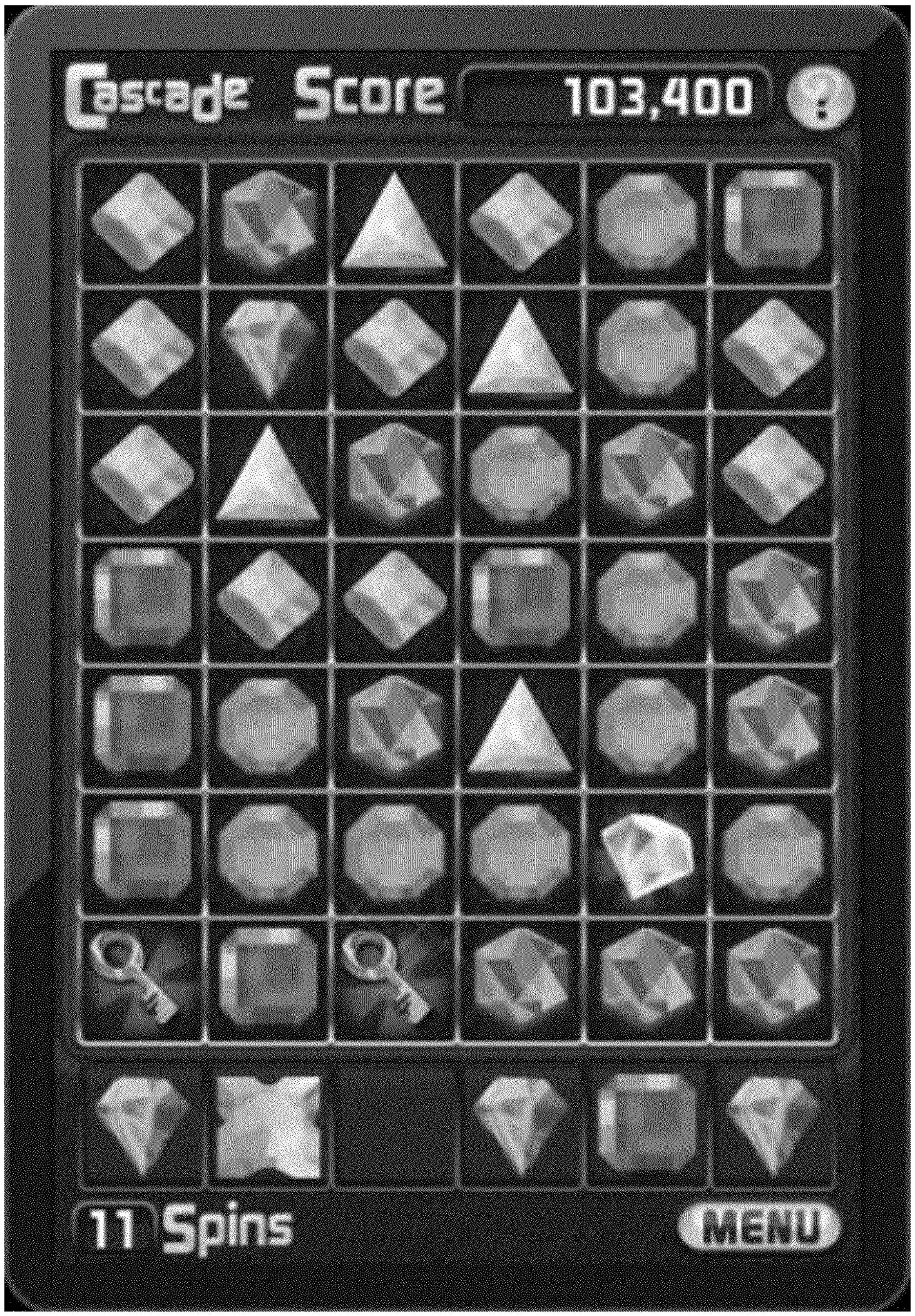


Fig. 7A

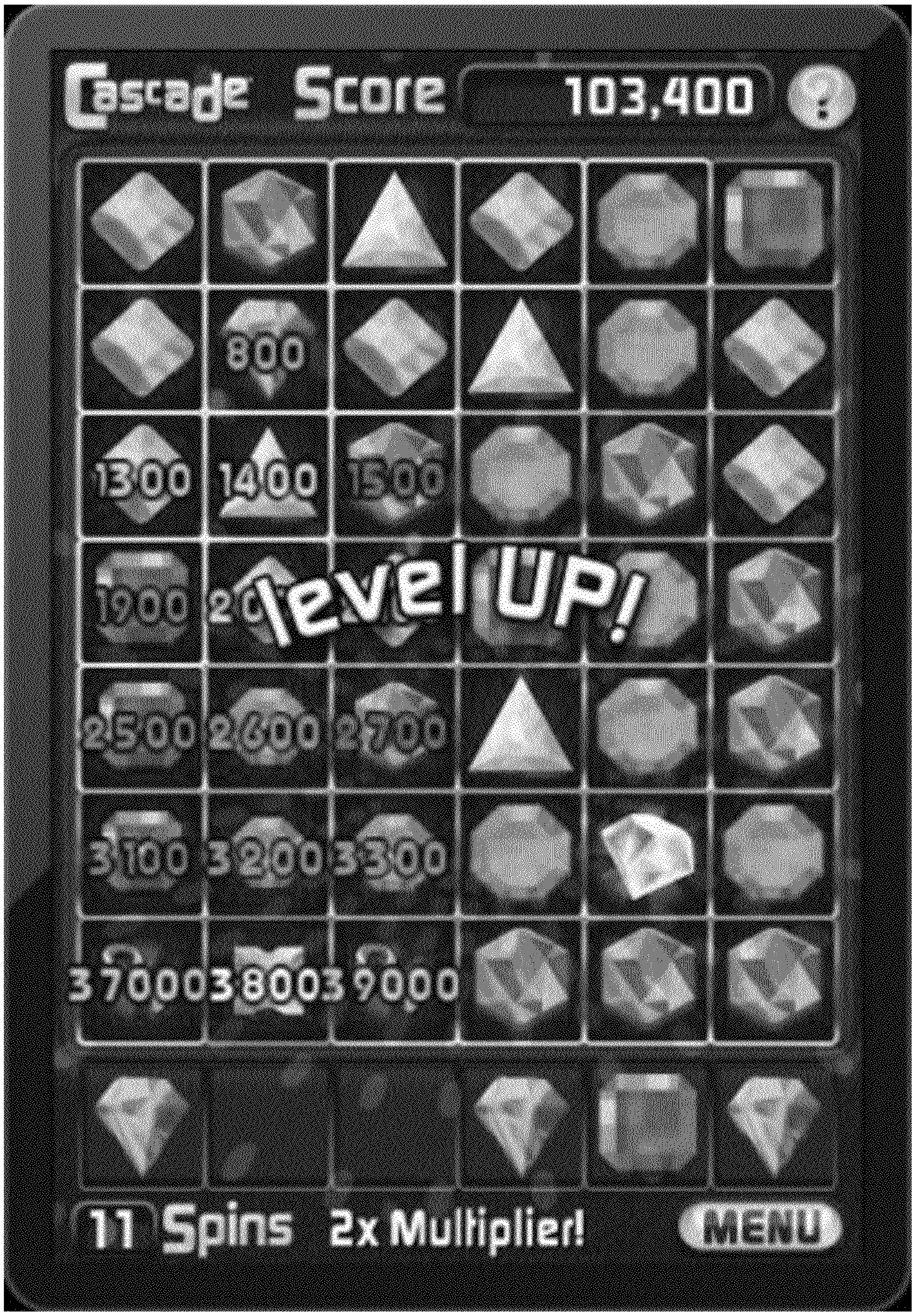

Cascade
Score
103,400
?
800
1300
1400
1500
1900
level UP!
2500
2600
2700
3100
3200
3300
3700
3800
3900
11 Spins
2x Multiplier!
MENU

Fig. 7B

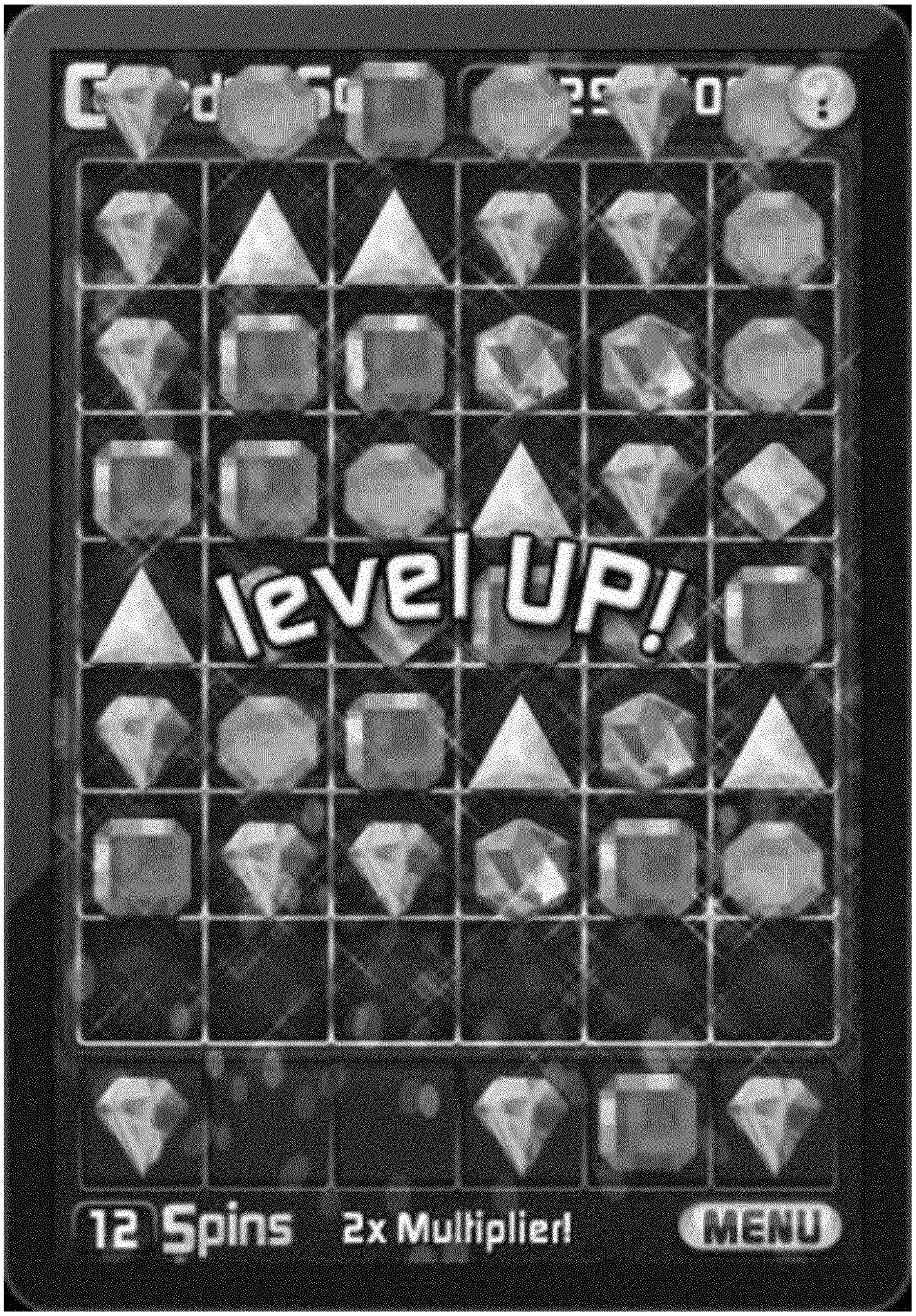
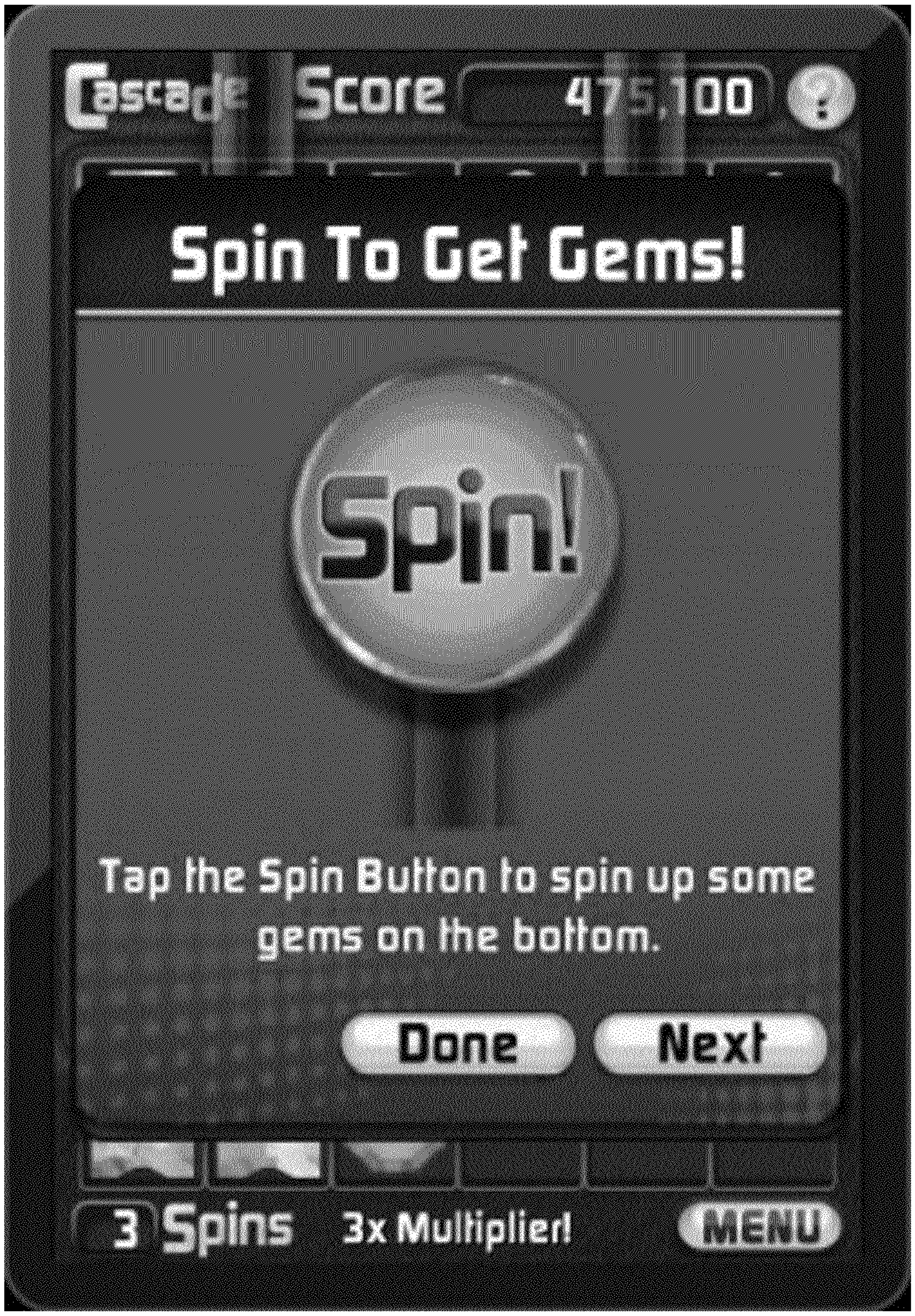


Fig. 7C



Spin To Get Gems!

Tap the Spin Button to spin up some gems on the bottom.

Fig. 8A

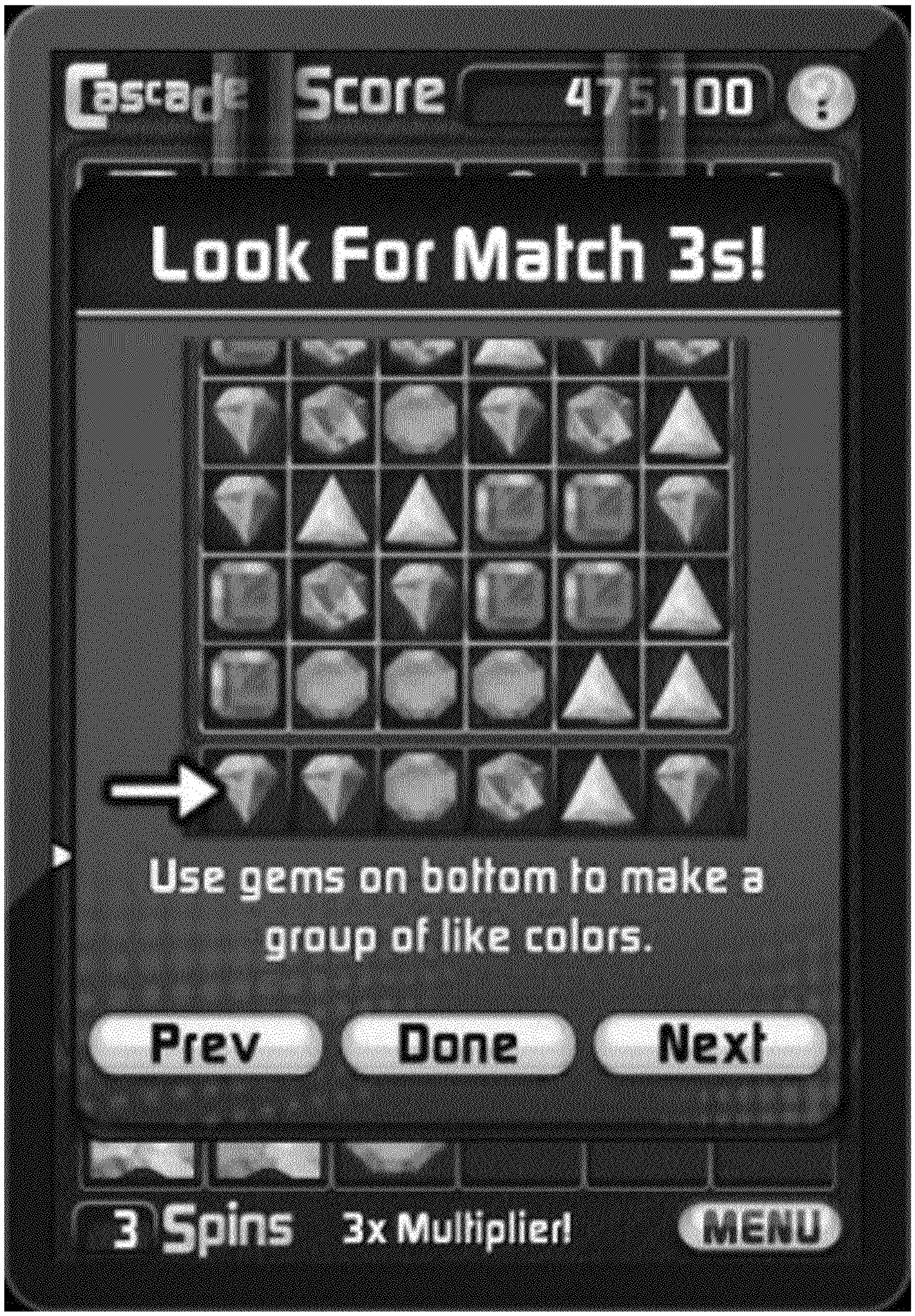
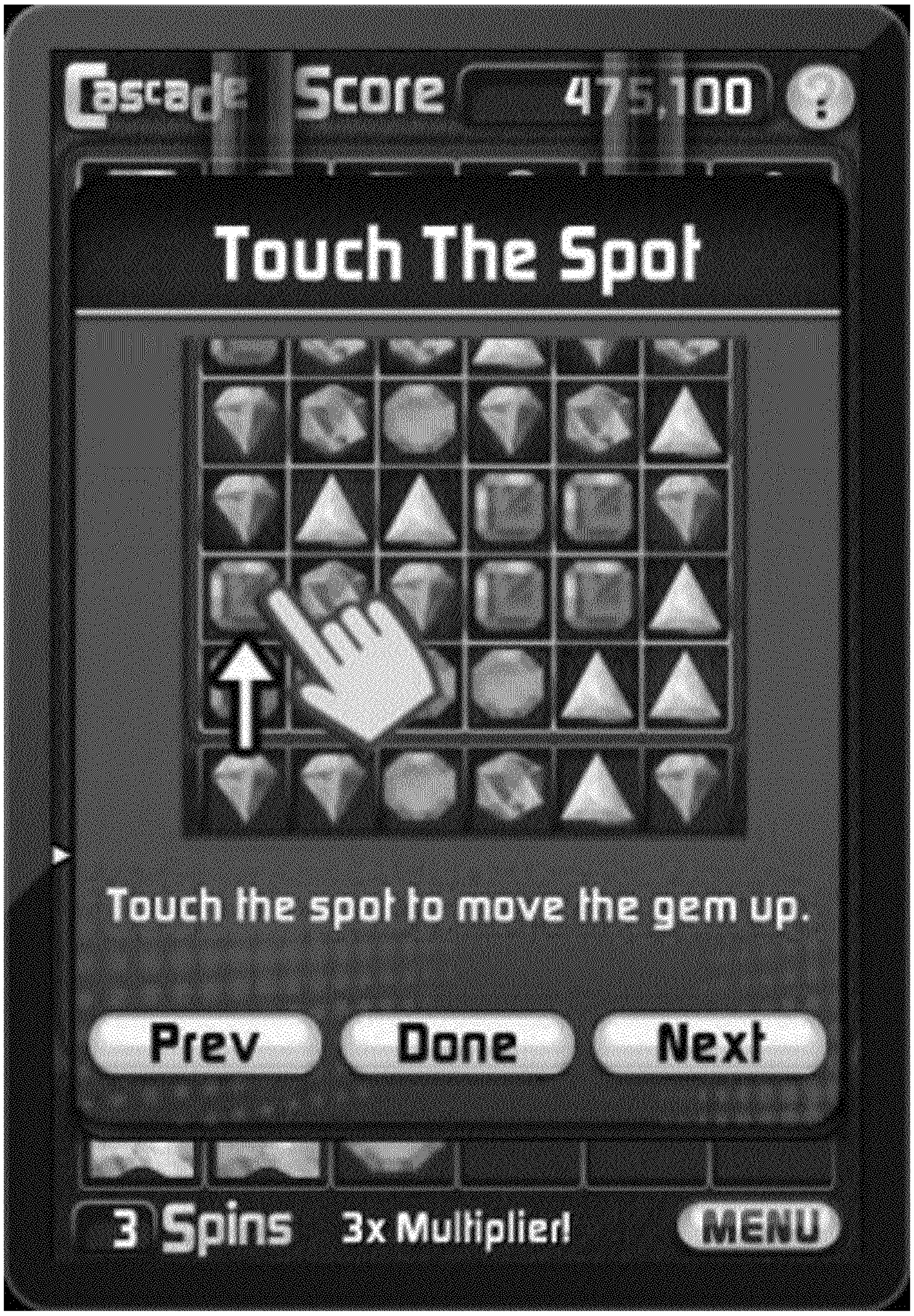

Cascade
Score
475,100
?
Look For Match 3s!
Use gems on bottom to make a group of like colors.
Prev
Done
Next
3 Spins
3x Multiplier!
MENU

Fig. 8B



Touch the spot to move the gem up.

Fig. 8C

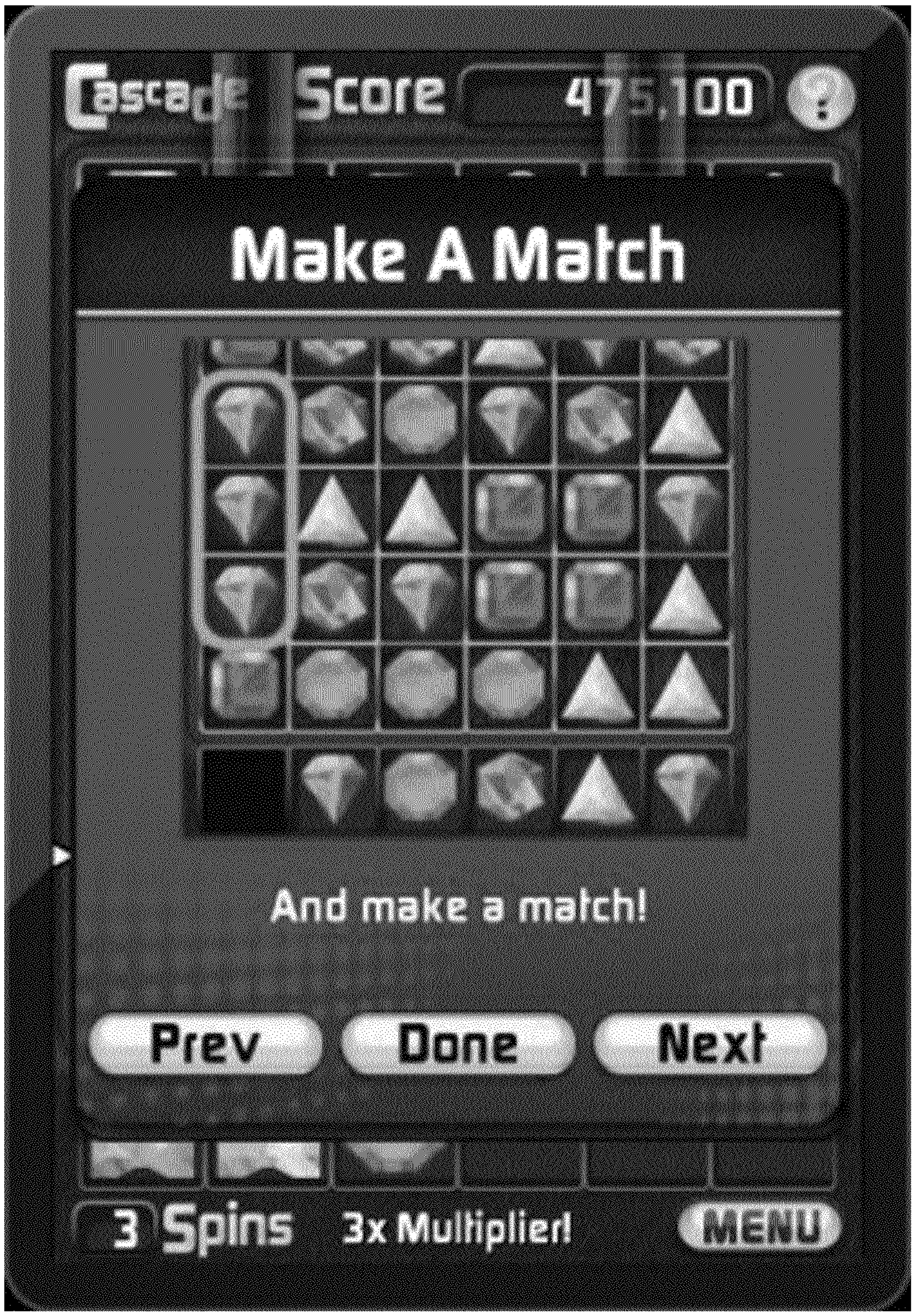
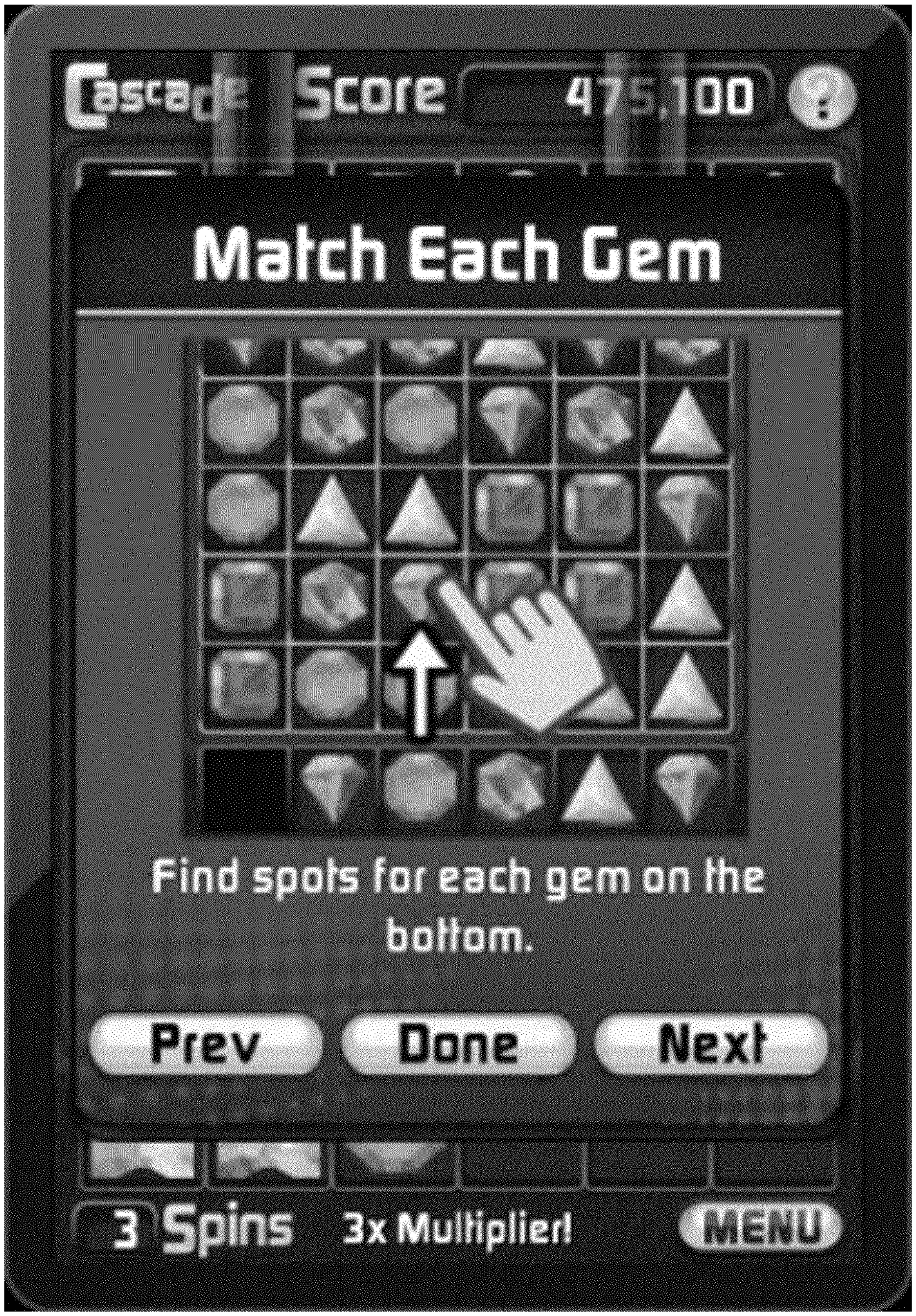

Cascade
Score
475,100
Make A Match
And make a match!
Prev
Done
Next
3 Spins
3x Multiplier!
MENU

Fig. 8D



Find spots for each gem on the bottom.

Fig. 8E

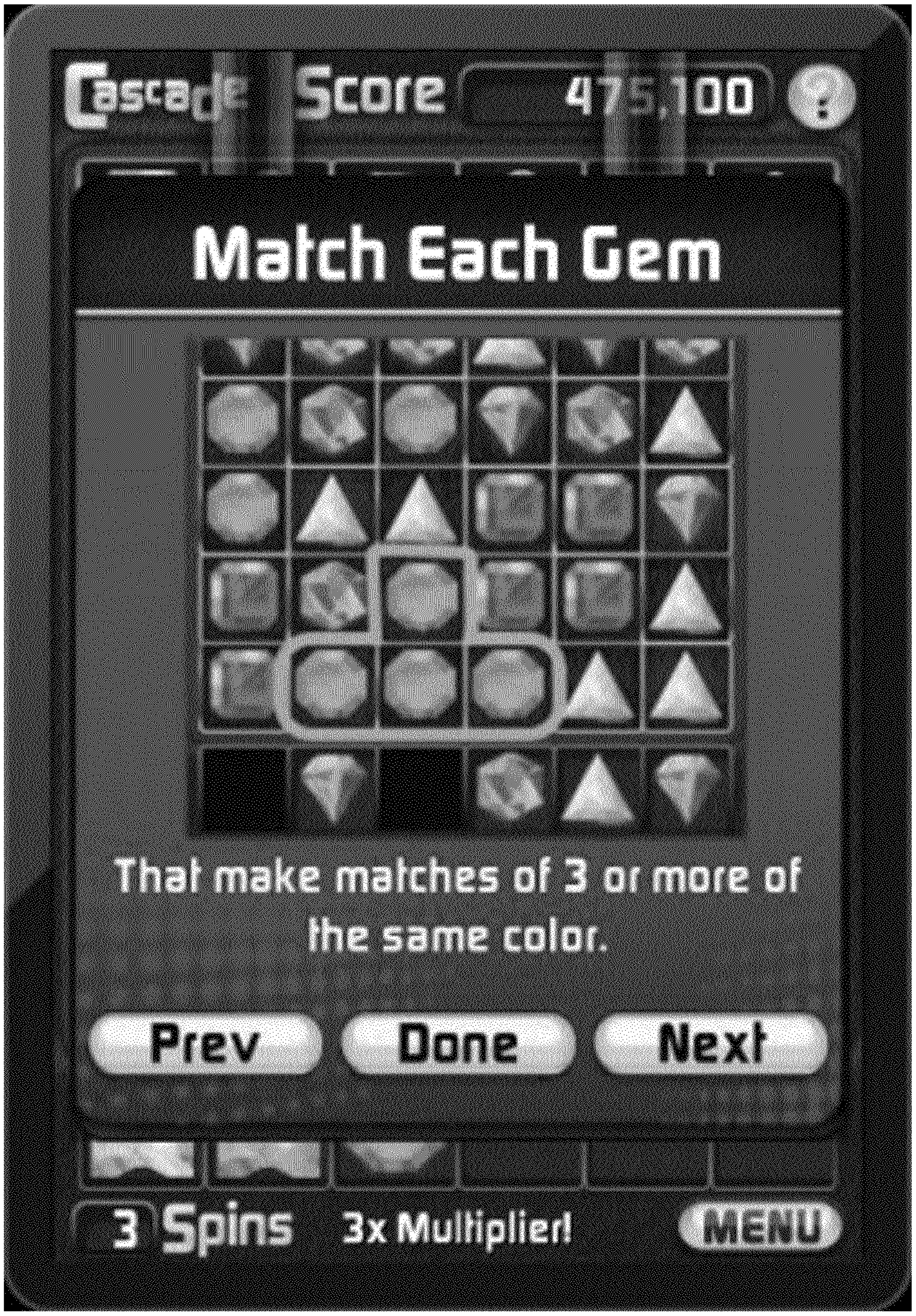
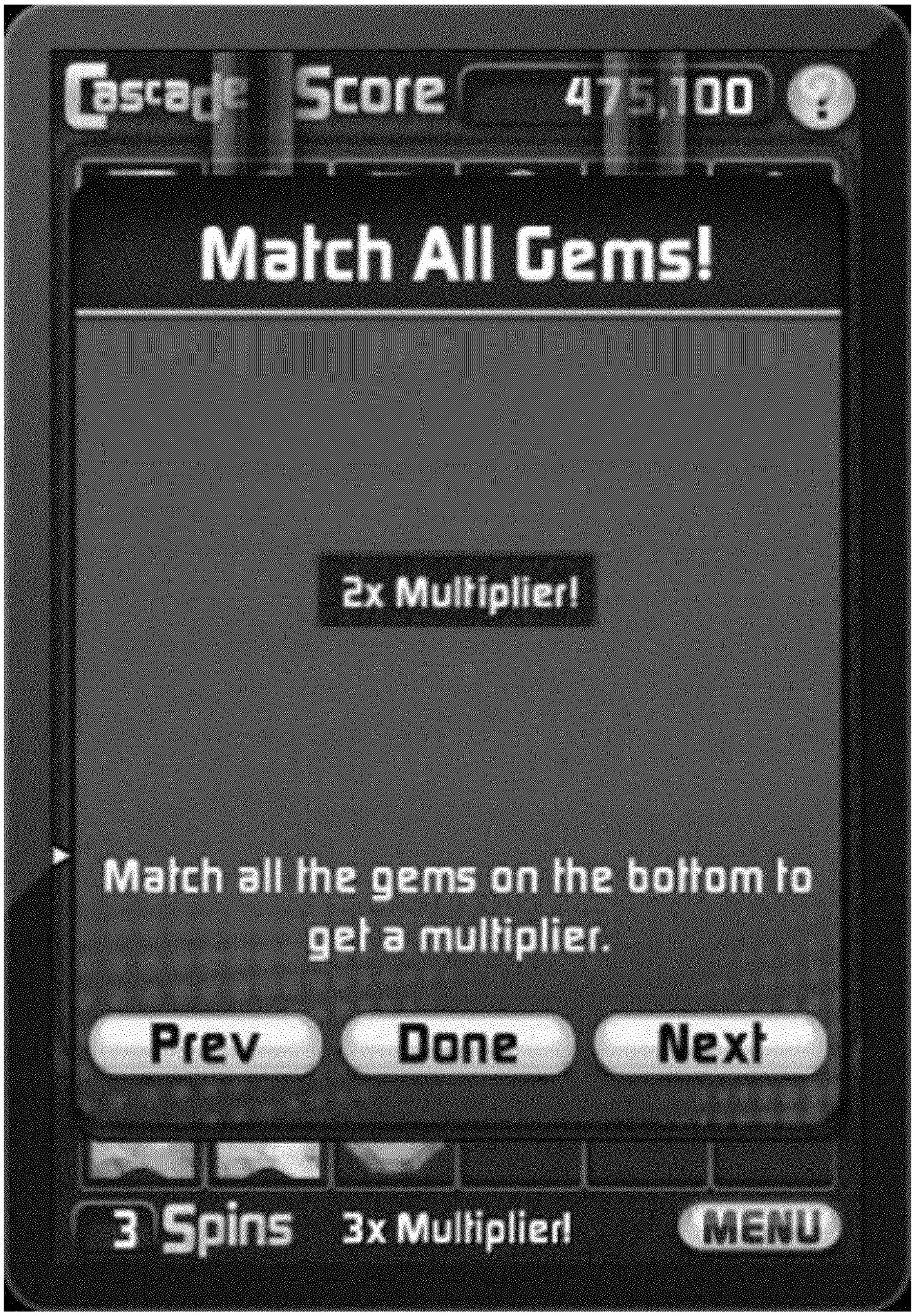

Cascade
Score
475,100
?
Match Each Gem
That make matches of 3 or more of the same color.
Prev
Done
Next
3 Spins
3x Multiplier!
MENU

Fig. 8F



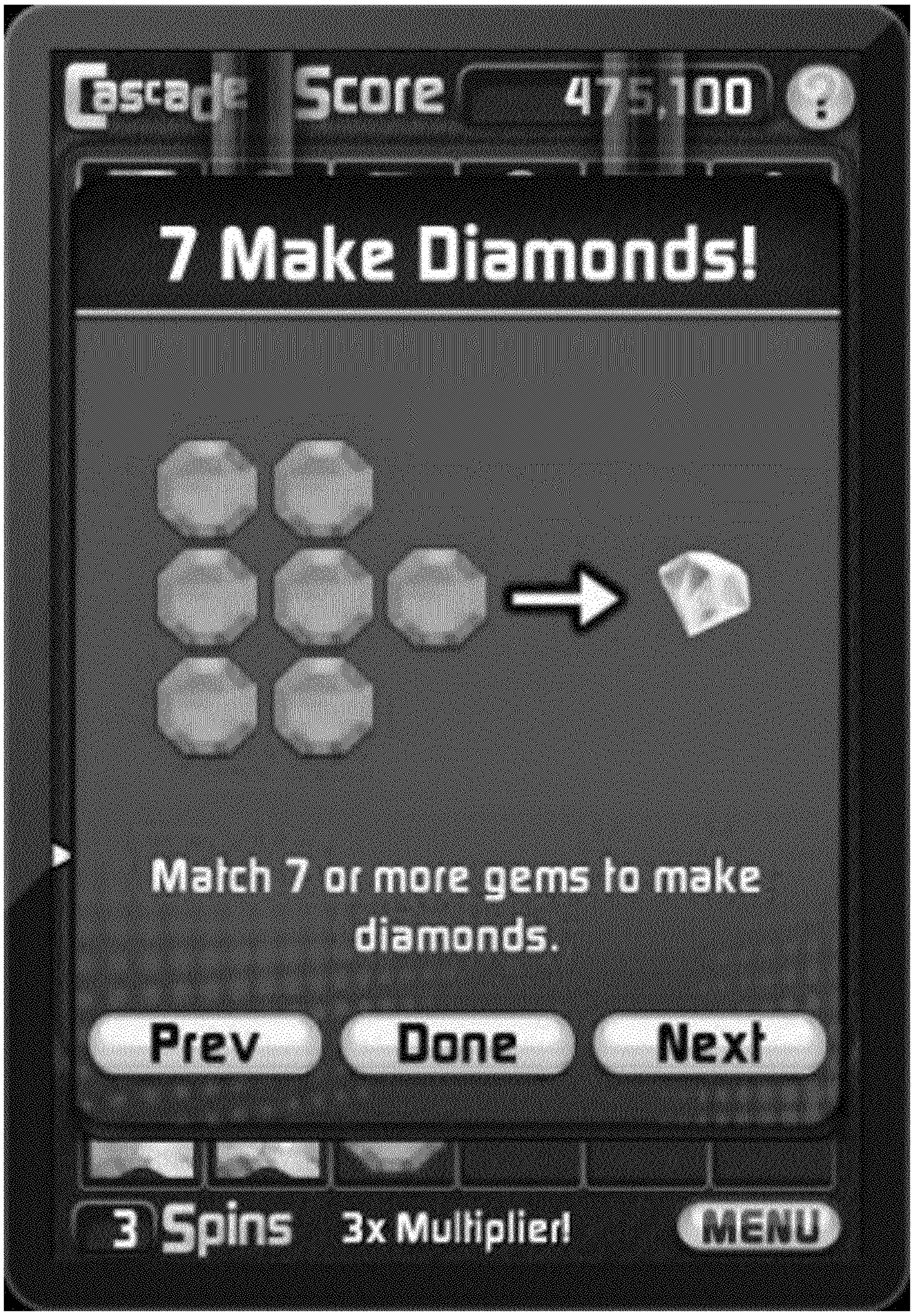
Match All Gems!

2x Multiplier!

Match all the gems on the bottom to get a multiplier.

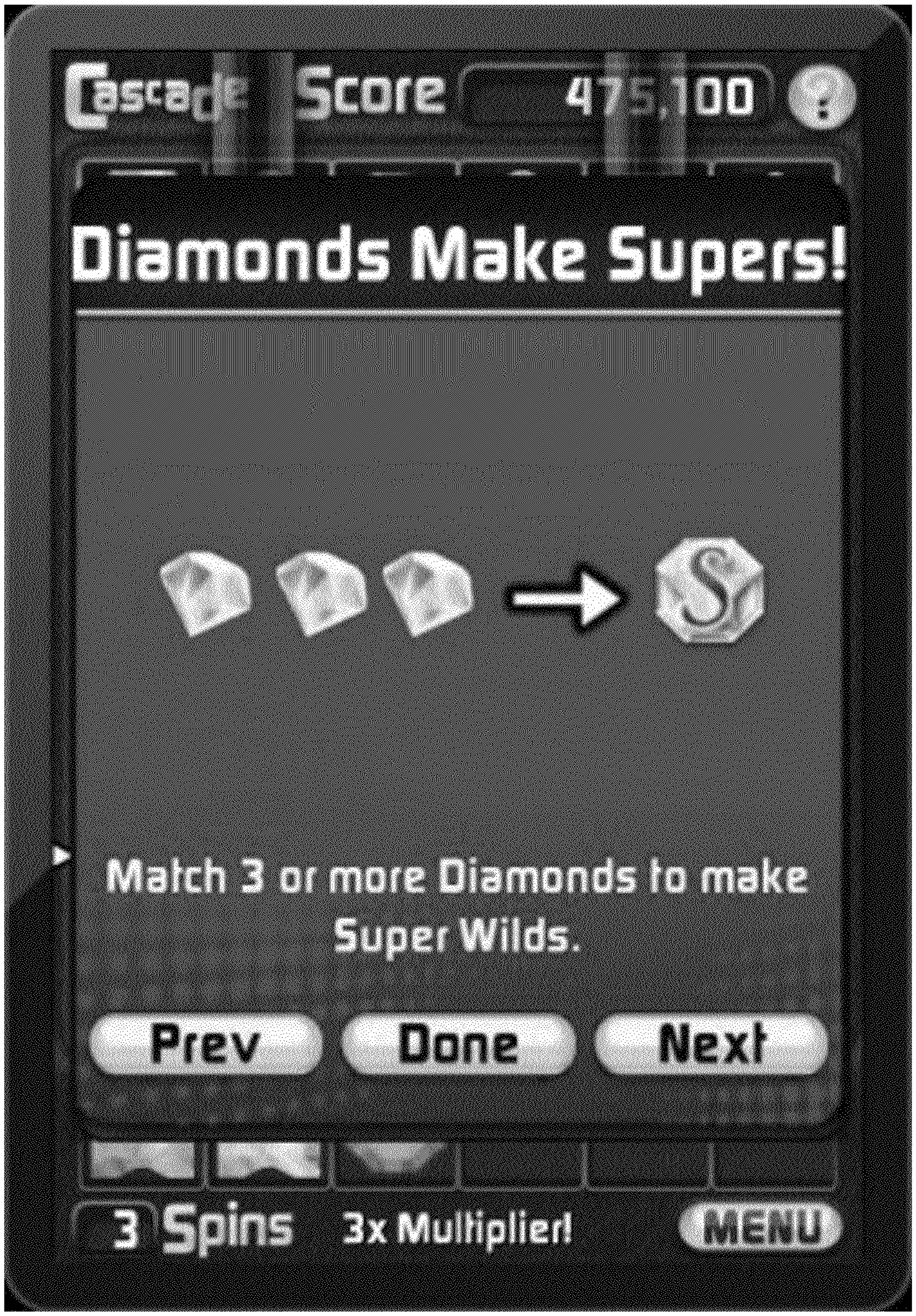
3x Multiplier!

Fig. 8G



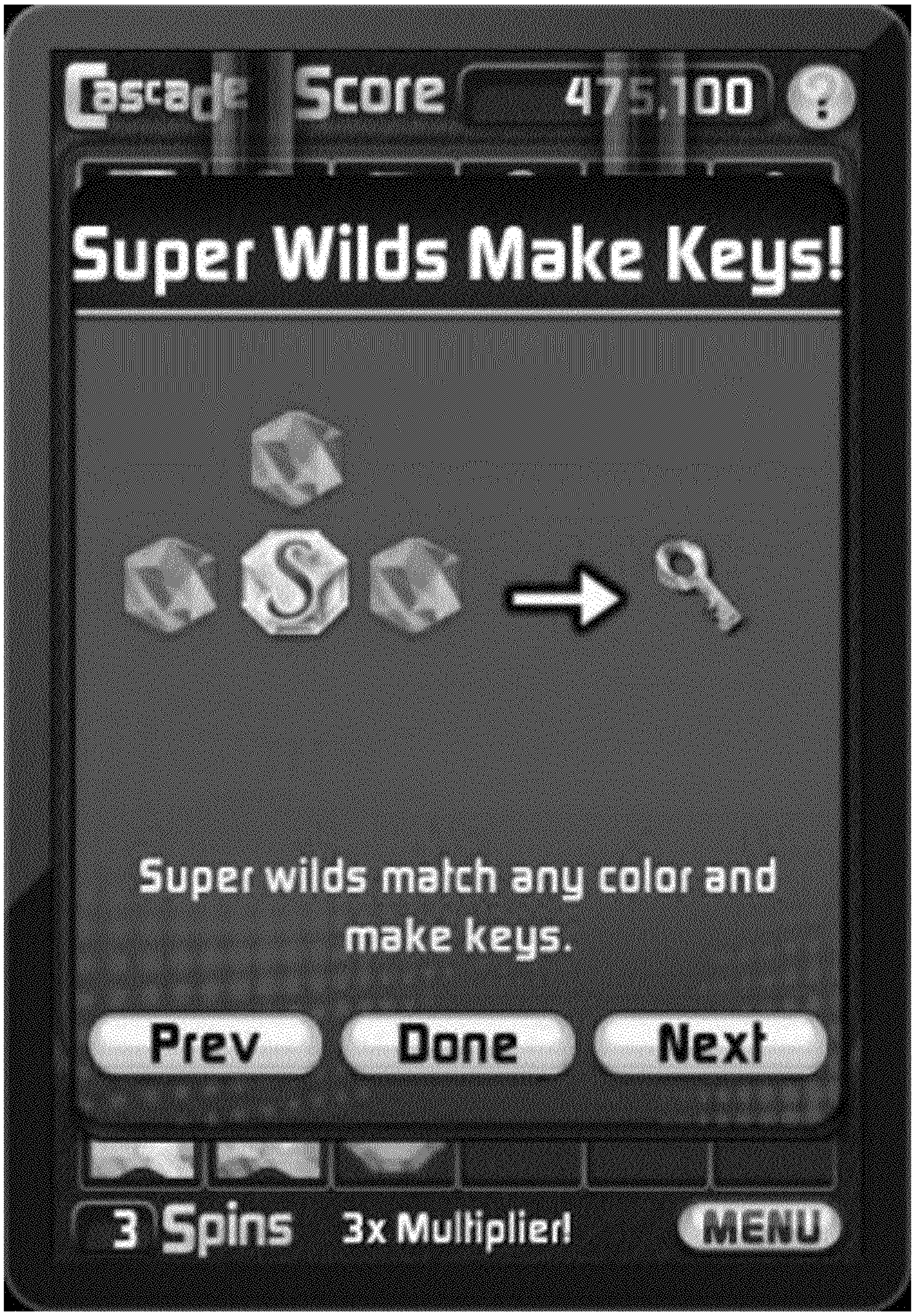
Match 7 or more gems to make diamonds.

Fig. 8H



Match 3 or more Diamonds to make Super Wilds.

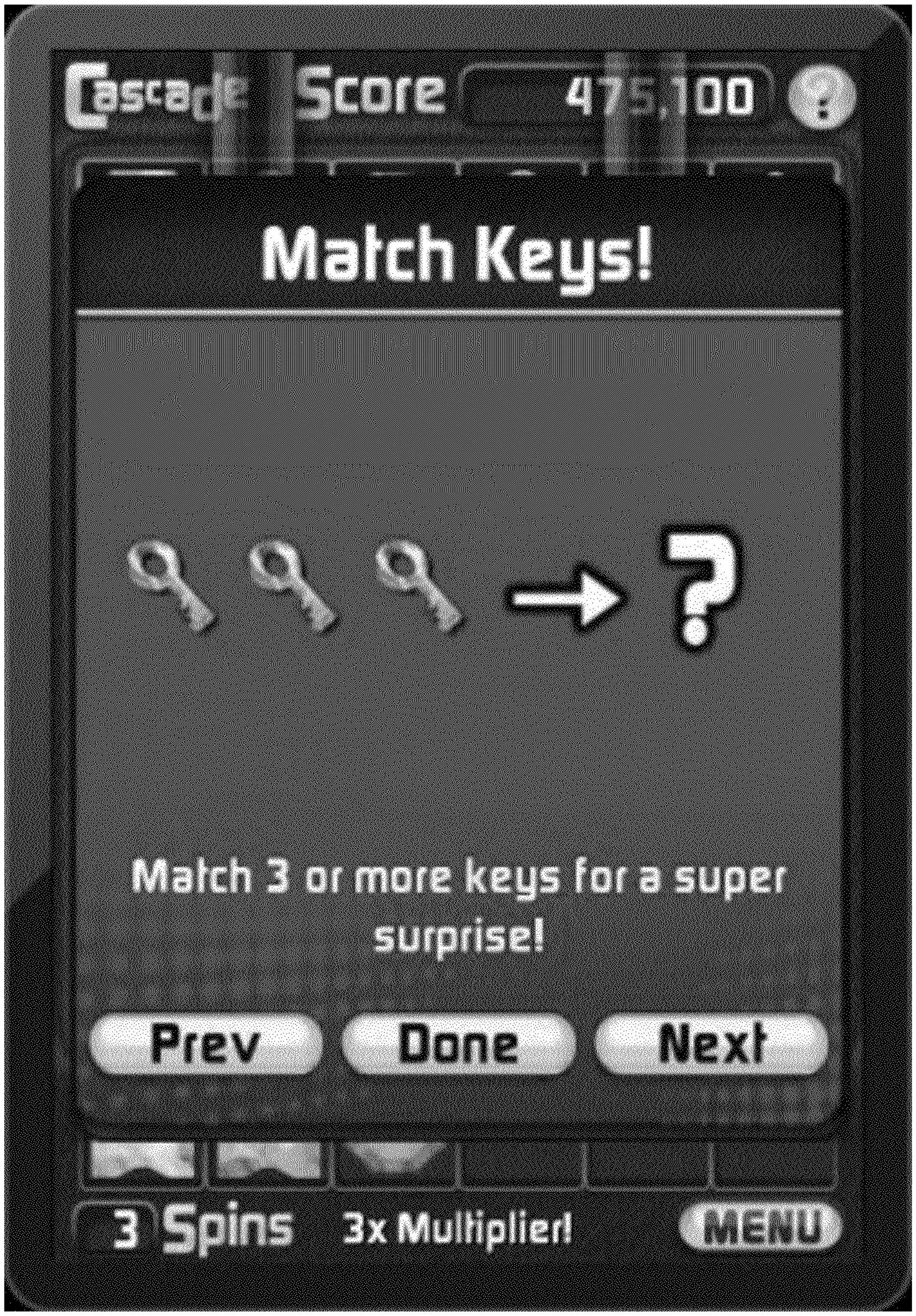
Fig. 8I



Super Wilds Make Keys!

Super wilds match any color and make keys.

Fig. 8J



Match Keys!

Match 3 or more keys for a super surprise!

Fig. 8K

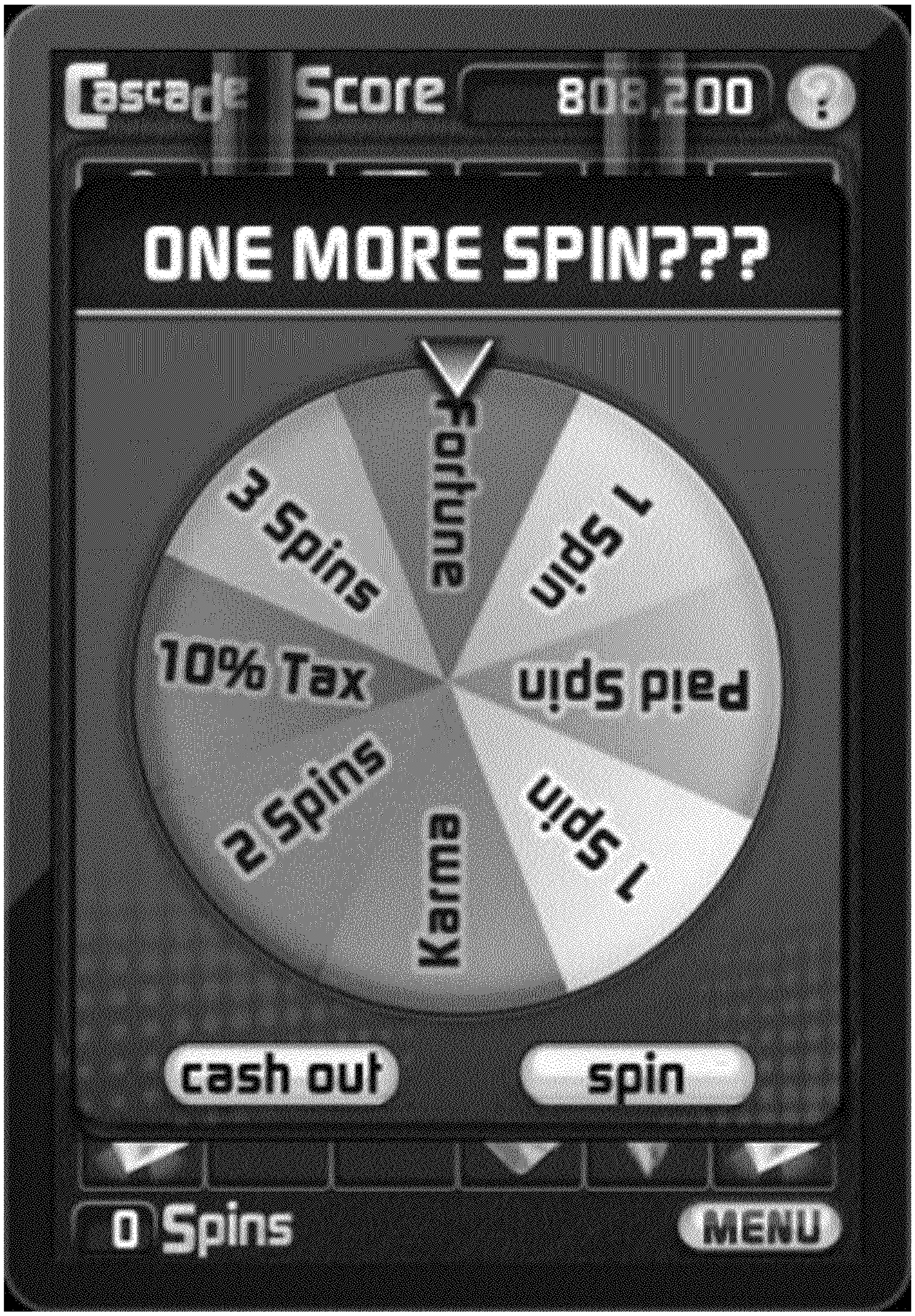

Cascade
Score
808,200
ONE MORE SPIN???
Fortune
1 Spin
Paid Spin
1 Spin
Karma
2 Spins
10% Tax
3 Spins
cash out
spin
0 Spins
MENU

Fig. 9A

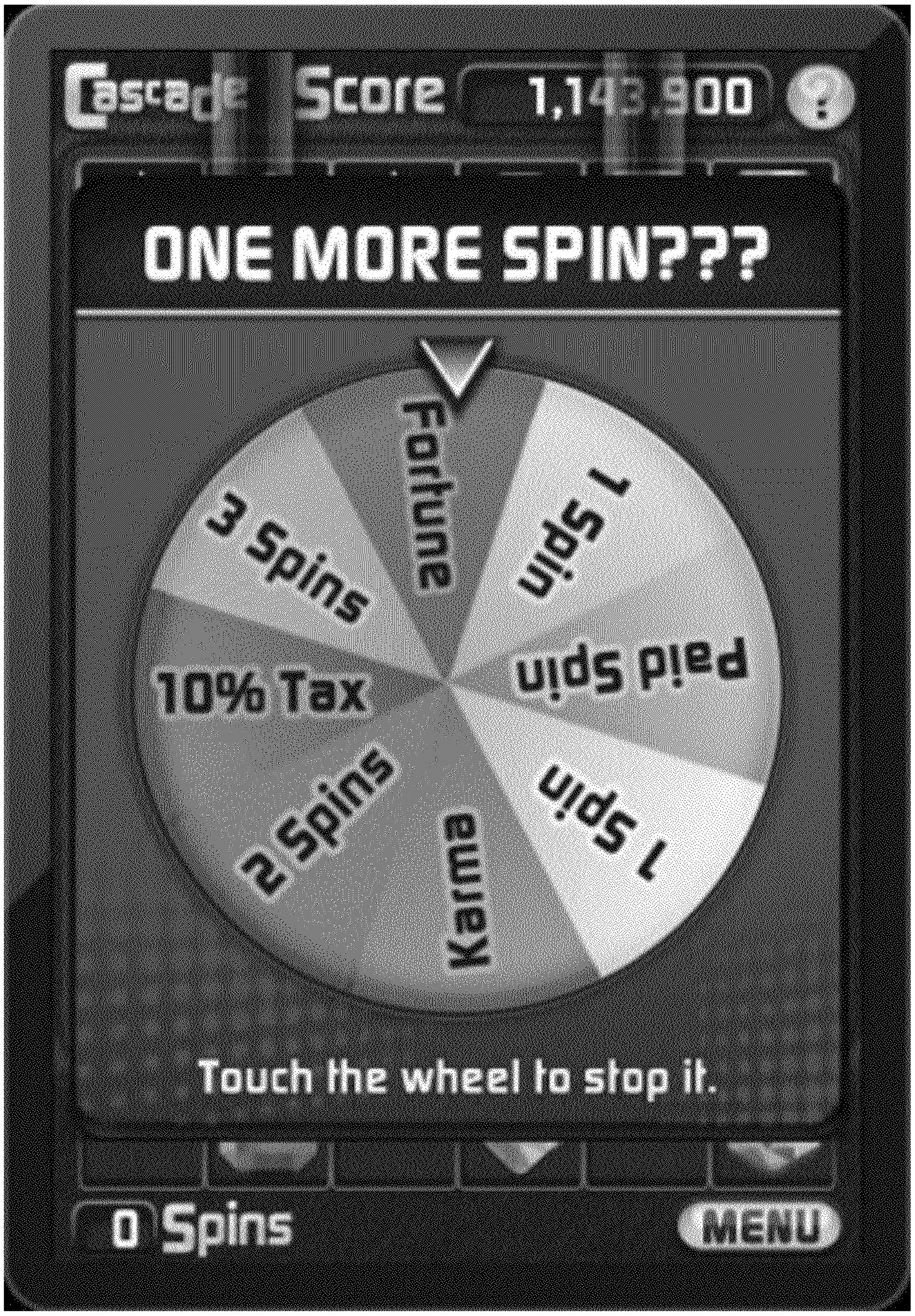

Cascade
Score
1,143,900
ONE MORE SPIN???
Fortune
1 Spin
Paid Spin
1 Spin
Karma
2 Spins
10% Tax
3 Spins
Touch the wheel to stop it.
0 Spins
MENU

Fig. 9B

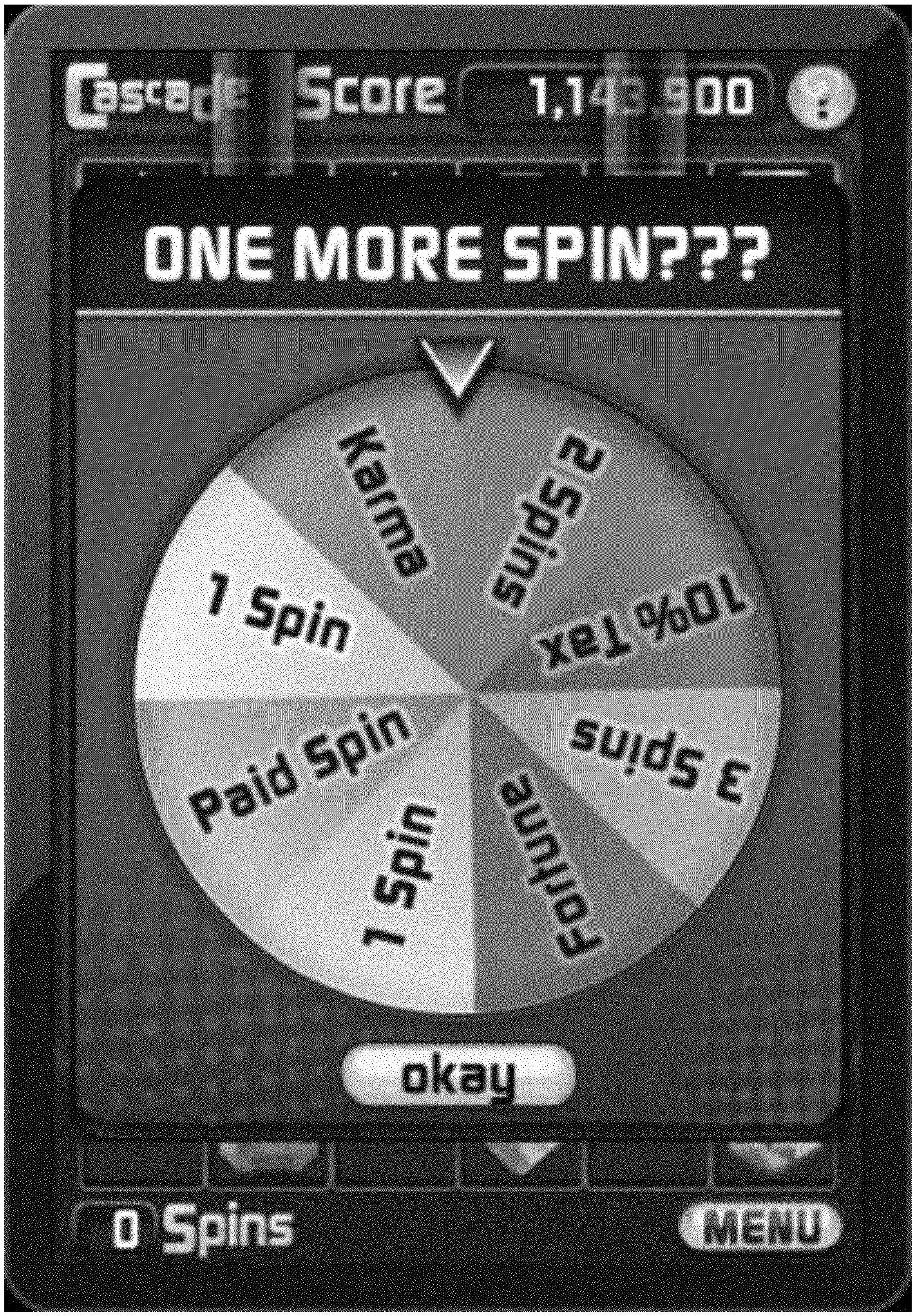

Cascade
Score
1,143,900
?
ONE MORE SPIN???
Karma
2 Spins
10% Tax
3 Spins
Fortune
1 Spin
Paid Spin
1 Spin
okay
0 Spins
MENU

Fig. 9C

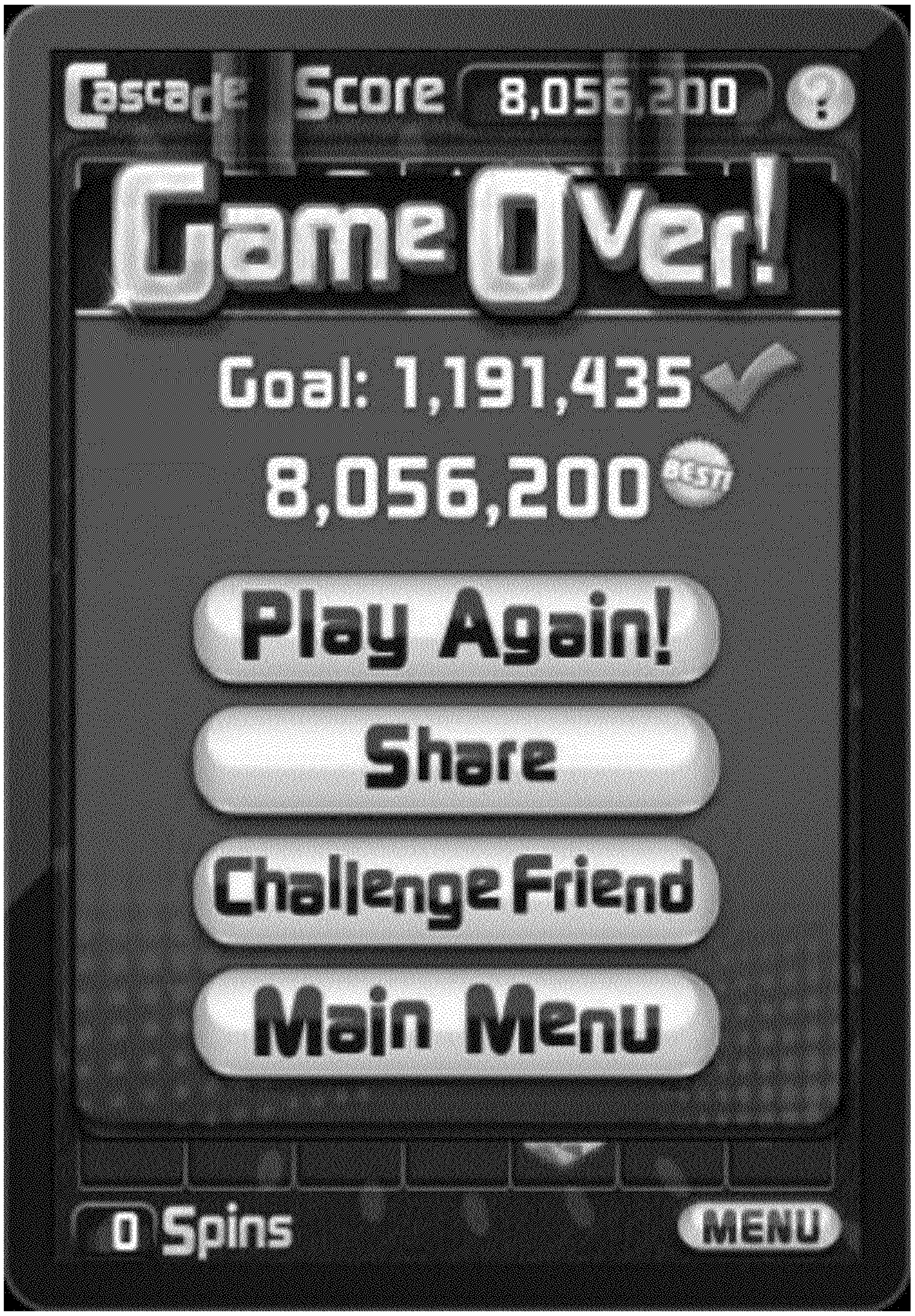
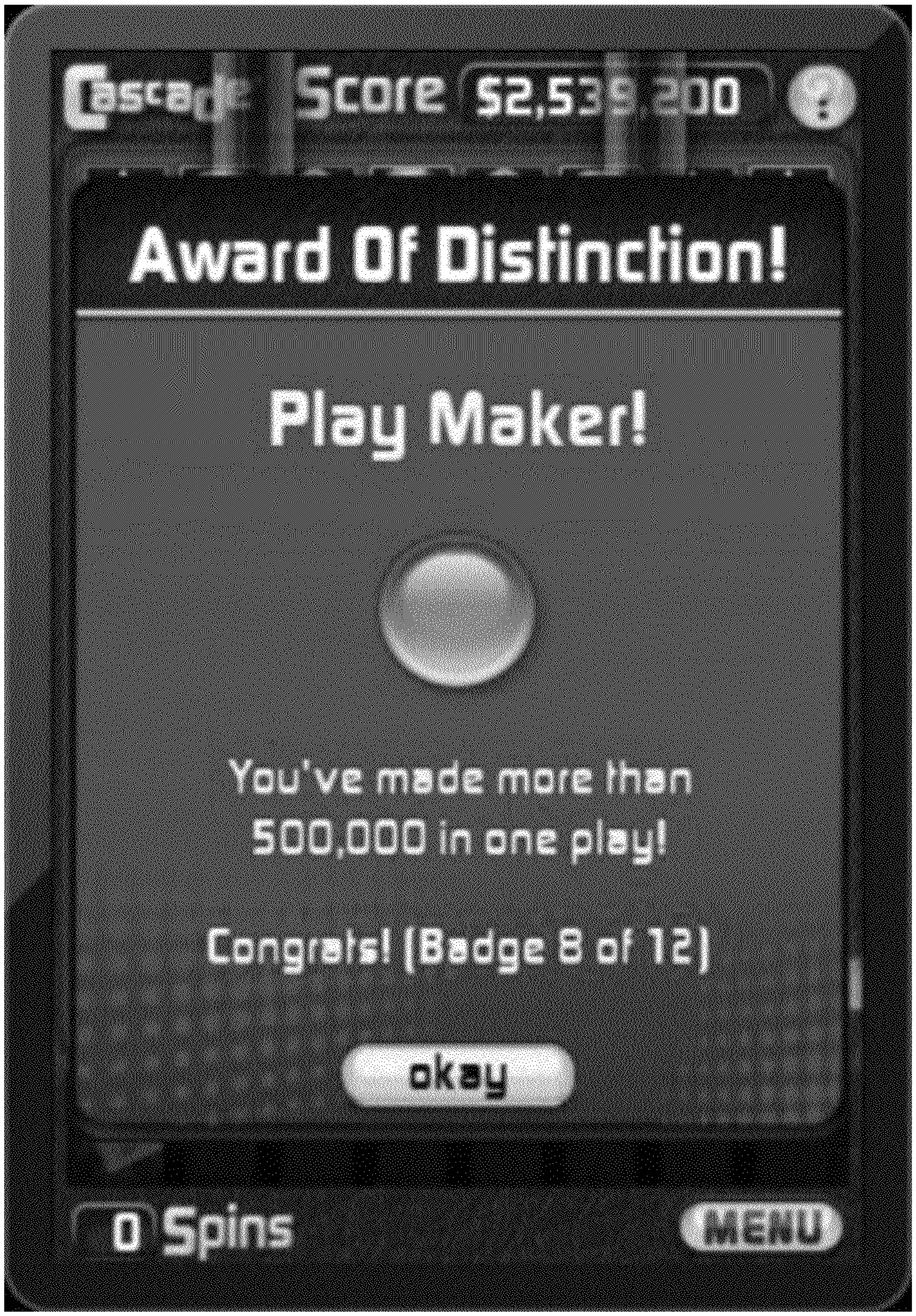

Cascade
Score 8,056,200
Game Over!
Goal: 1,191,435
8,056,200
BEST!
Play Again!
Share
Challenge Friend
Main Menu
0 Spins
MENU

Fig. 10A



Award Of Distinction!

Play Maker!

You've made more than
500,000 in one play!

Congrats! (Badge 8 of 12)

Fig. 10B

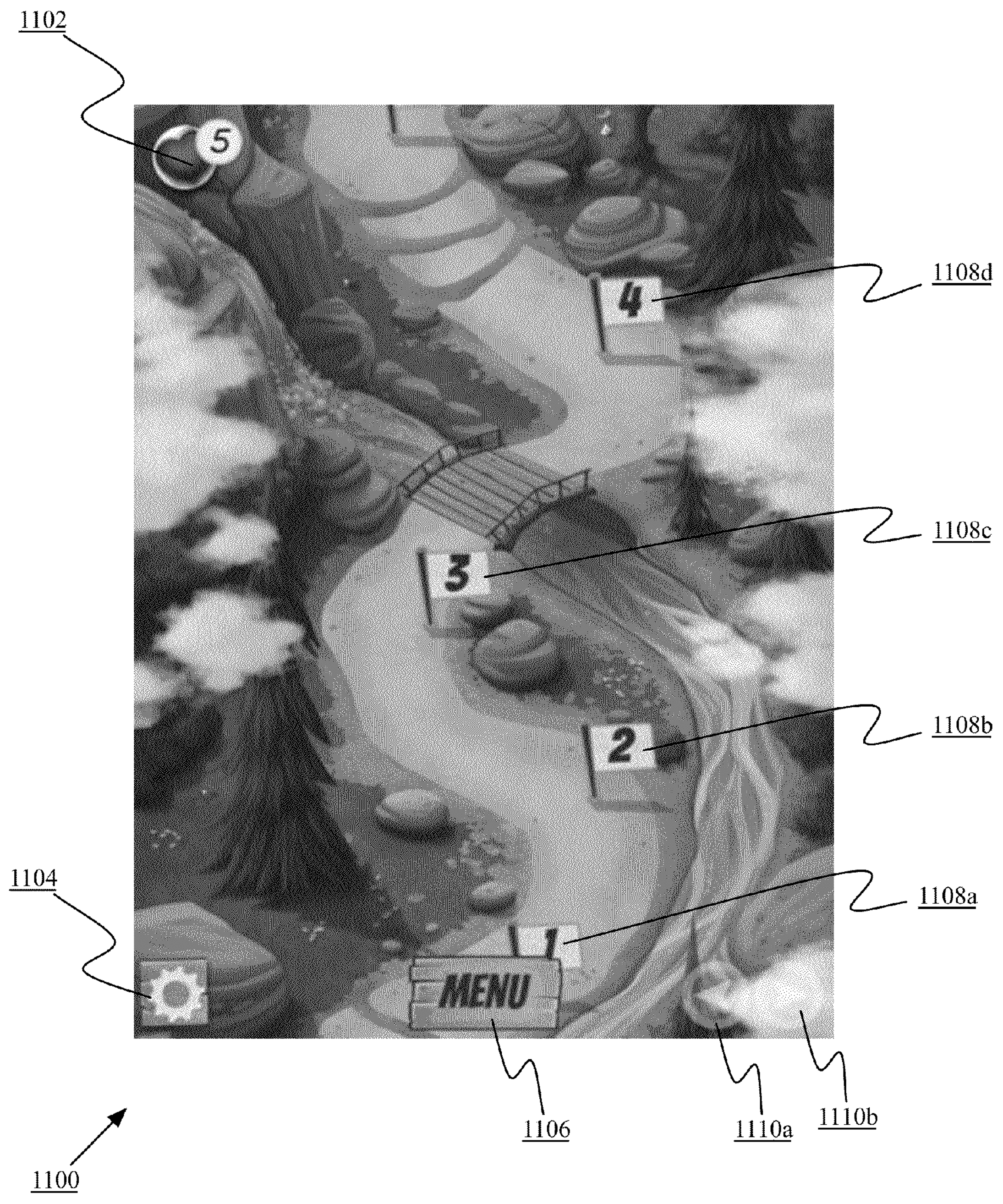

1102
5
4
1108d
3
1108c
2
1108b
1
1108a
1104
MENU
1106
1110a
1110b
1100

Fig. 11A

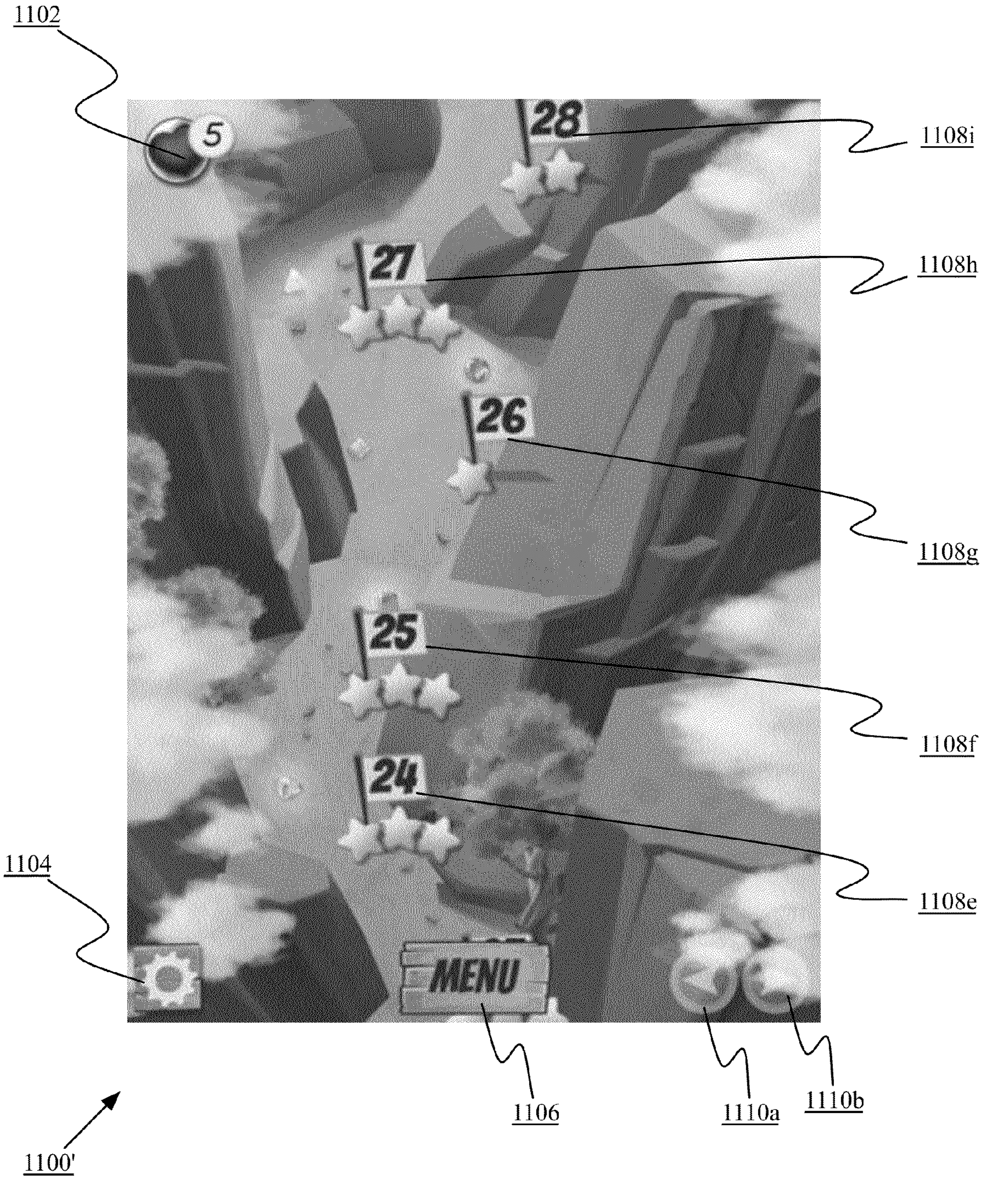

1102
5
28
1108i
27
1108h
26
1108g
25
1108f
24
1108e
1104
MENU
1106
1110a
1110b
1100'

Fig. 11B

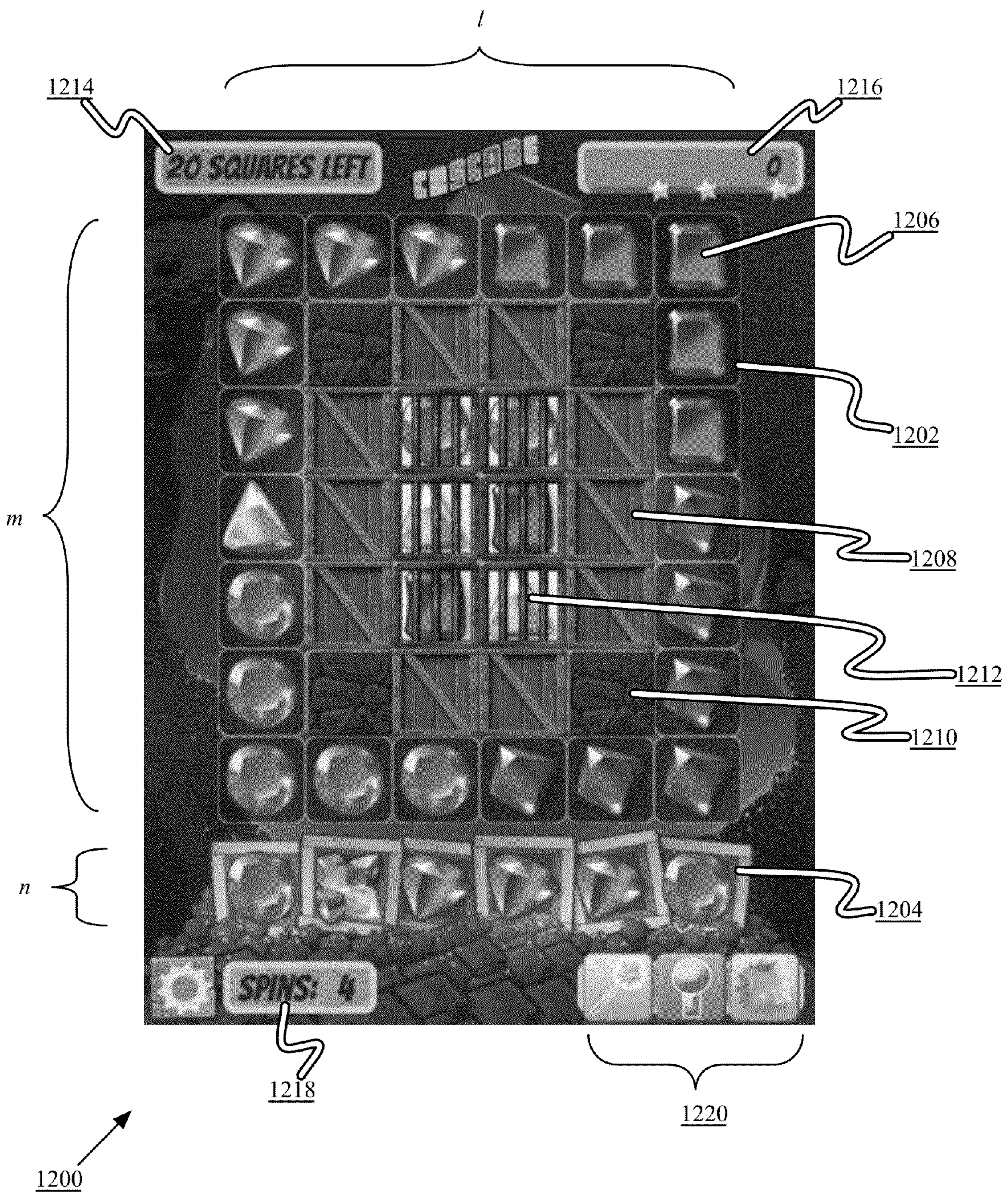

l
1214
1216
20 SQUARES LEFT
CASCADE
0
1206
1202
m
1208
1212
1210
n
1204
SPINS: 4
1218
1220
1200

Fig. 12A

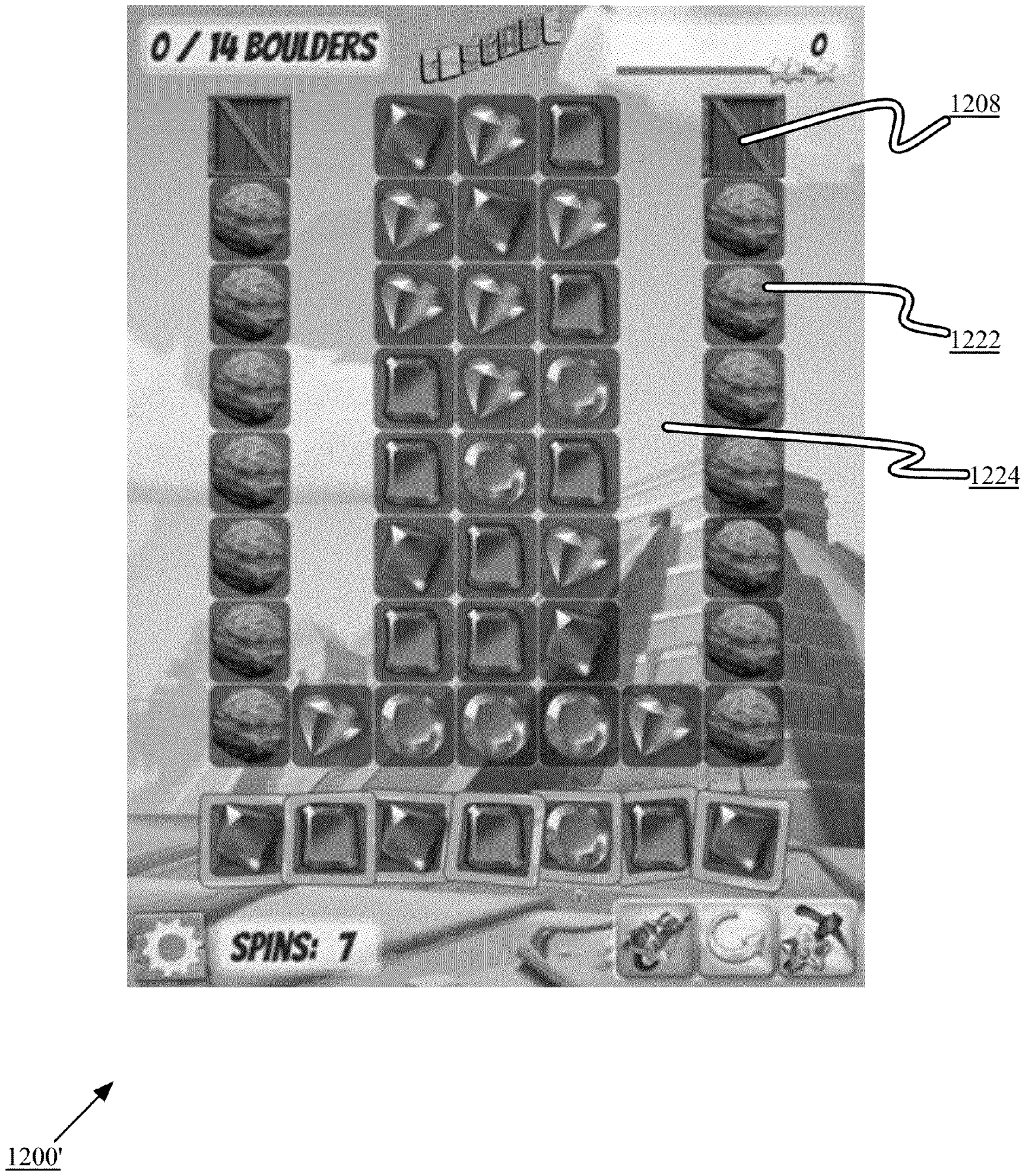


Fig. 12B

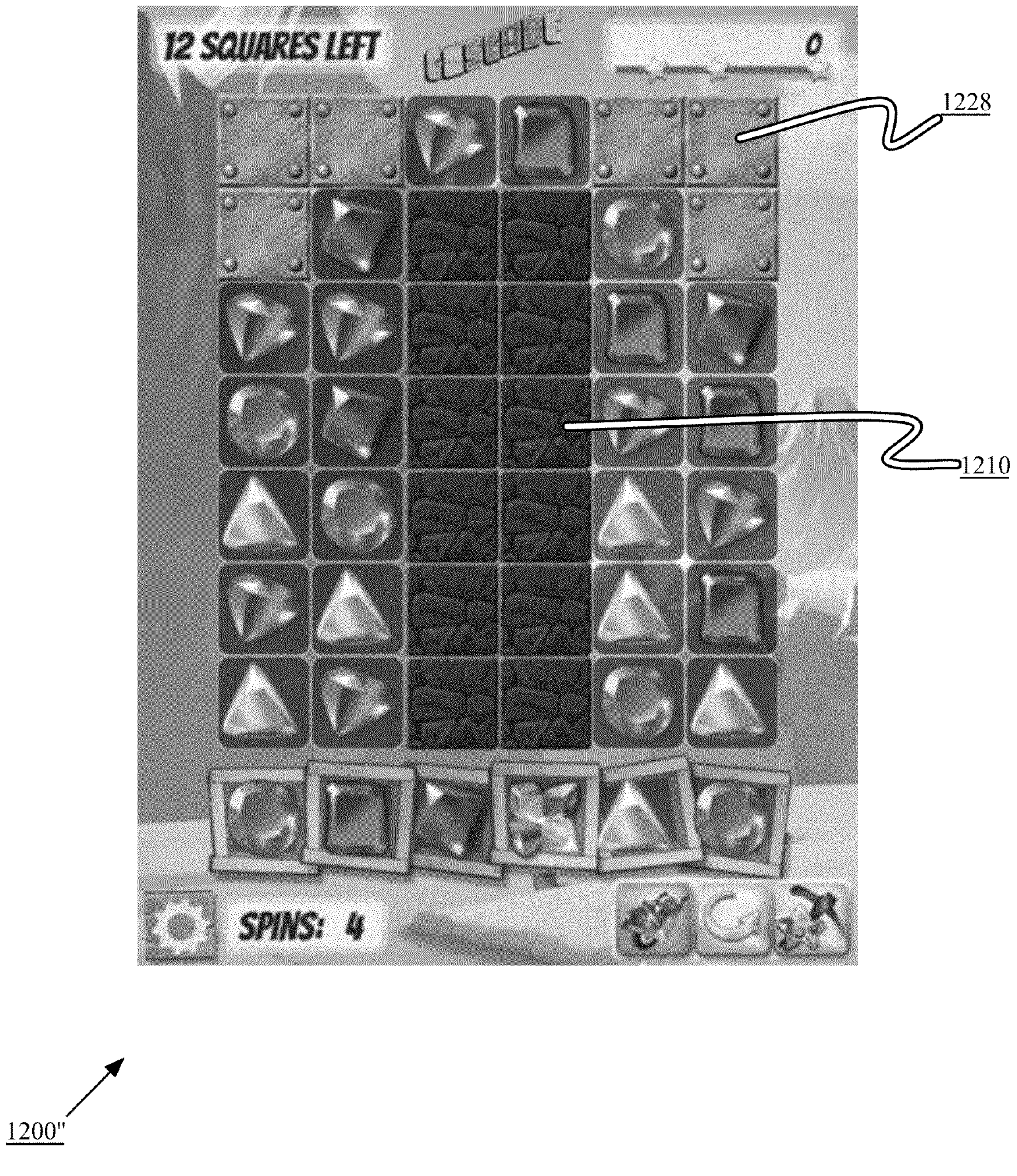


Fig. 12C

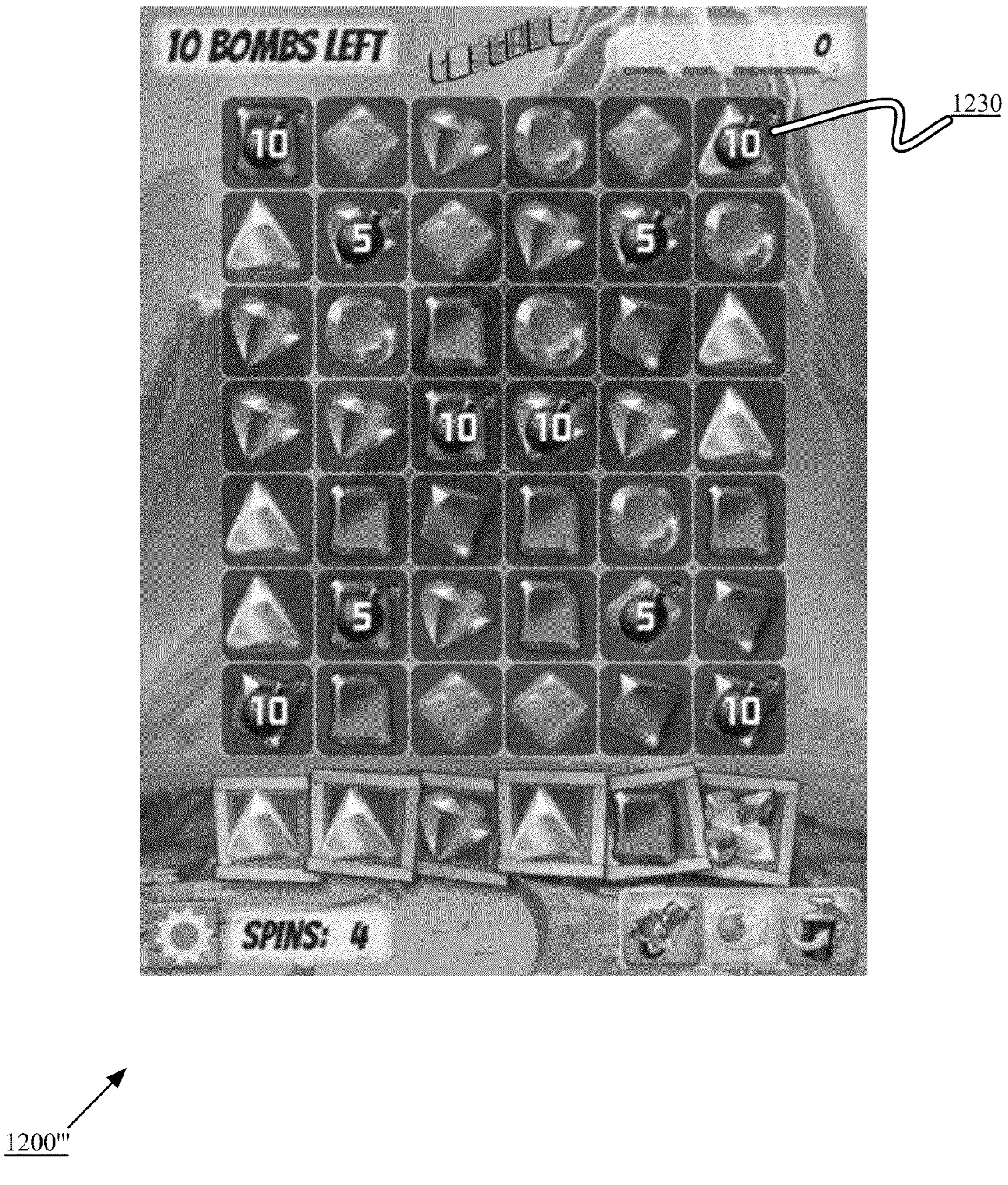


Fig. 12D

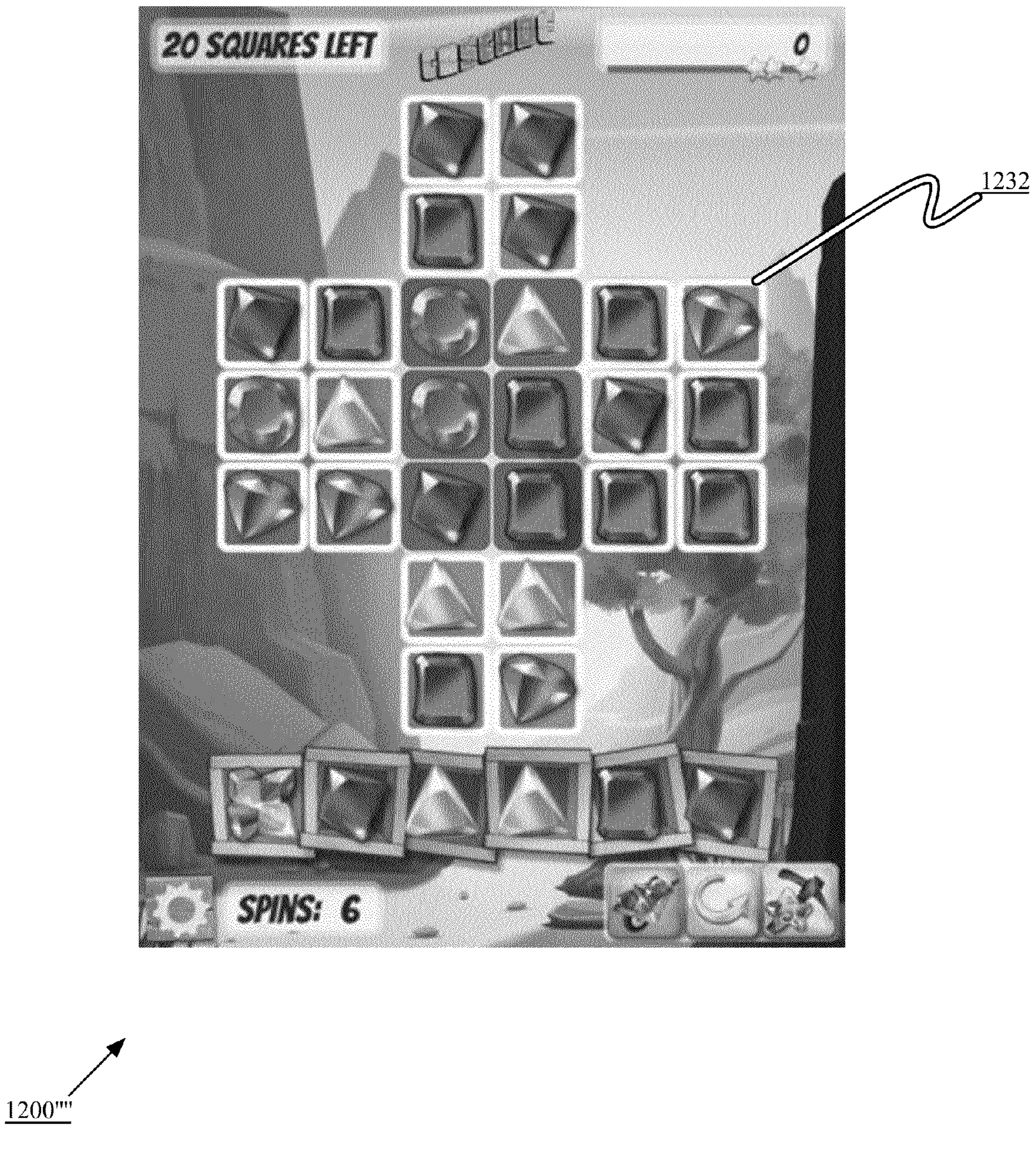


Fig. 12E

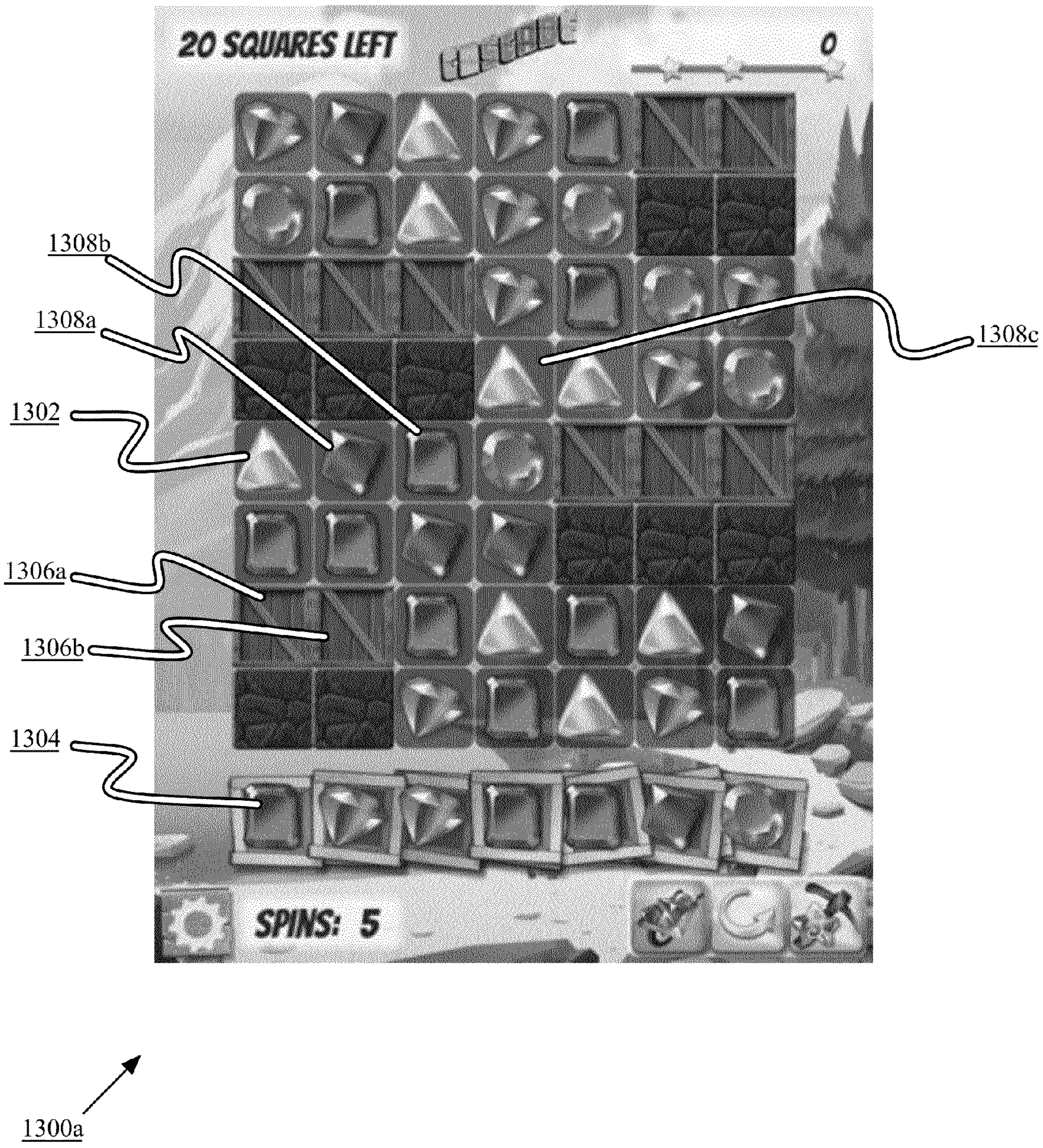

20 SQUARES LEFT
0
SPINS: 5
1308b
1308a
1302
1306a
1306b
1304
1308c
1300a

Fig. 13A

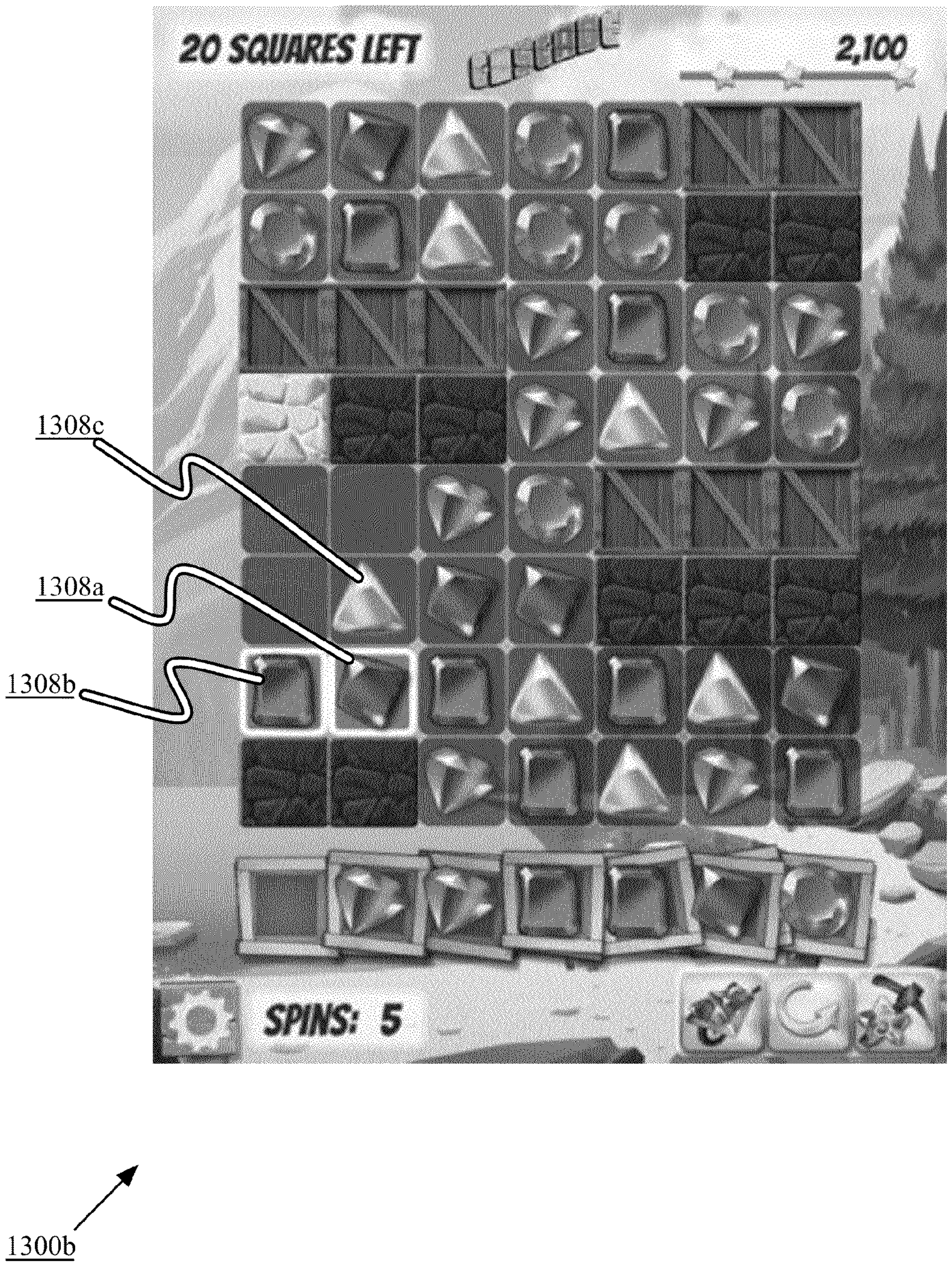


Fig. 13B

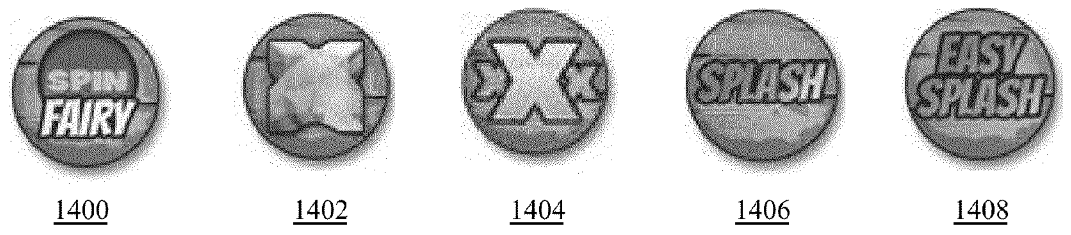


Fig. 14A

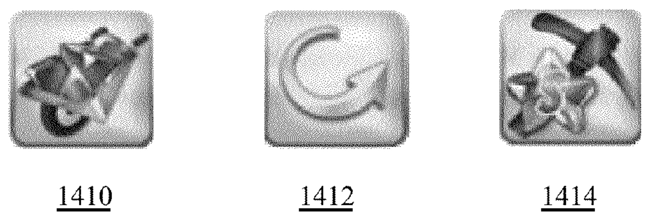


Fig. 14B

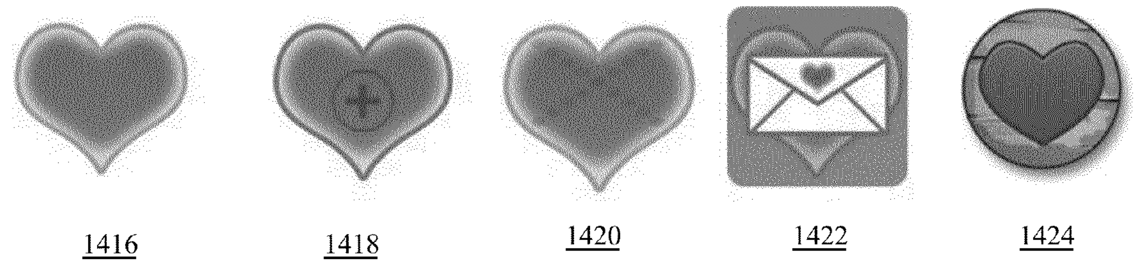


Fig. 14C

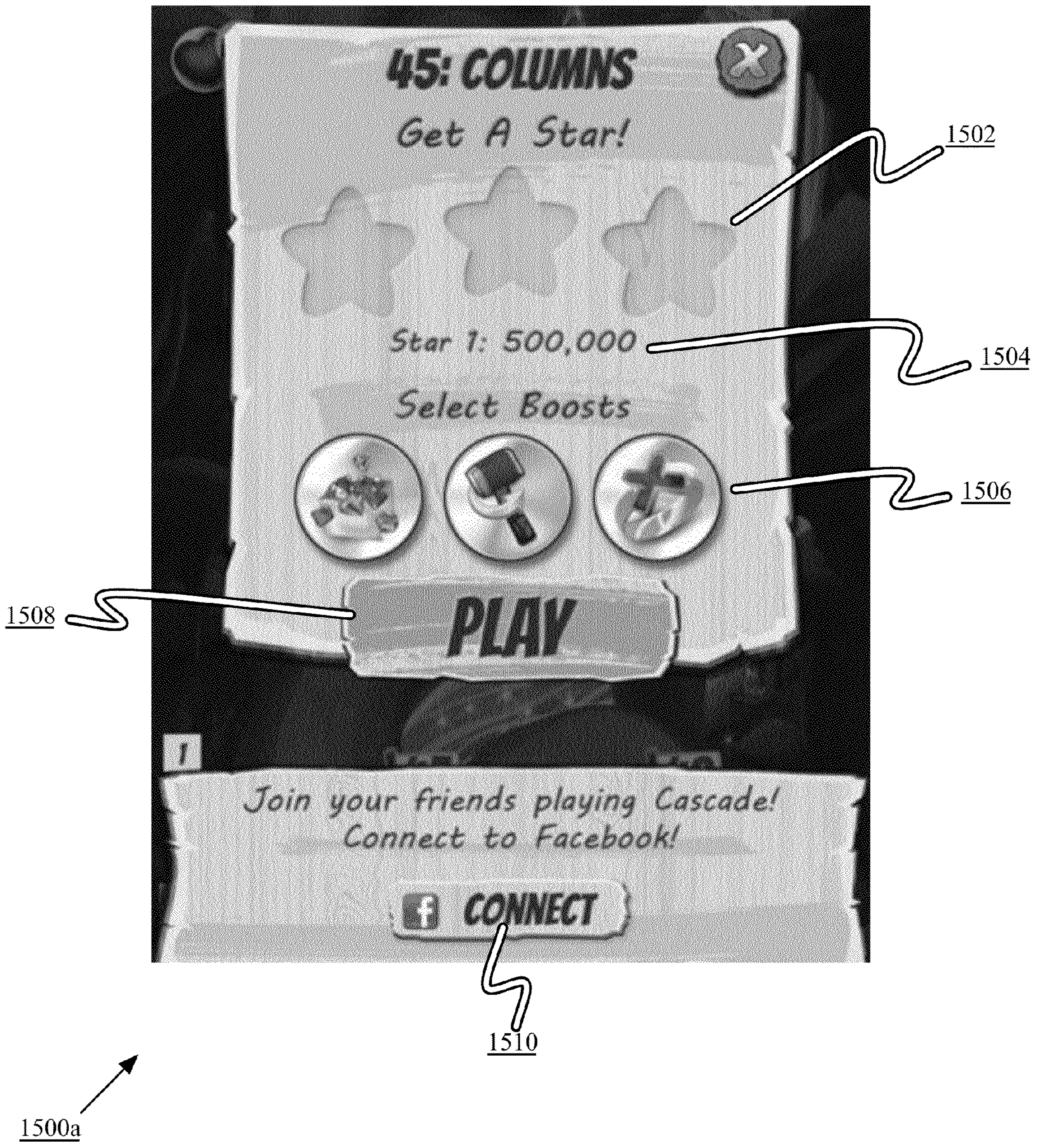

45: COLUMNS
Get A Star!
Star 1: 500,000
Select Boosts
PLAY
1
Join your friends playing Cascade!
Connect to Facebook!
CONNECT
1502
1504
1506
1508
1510
1500a

Fig. 15A

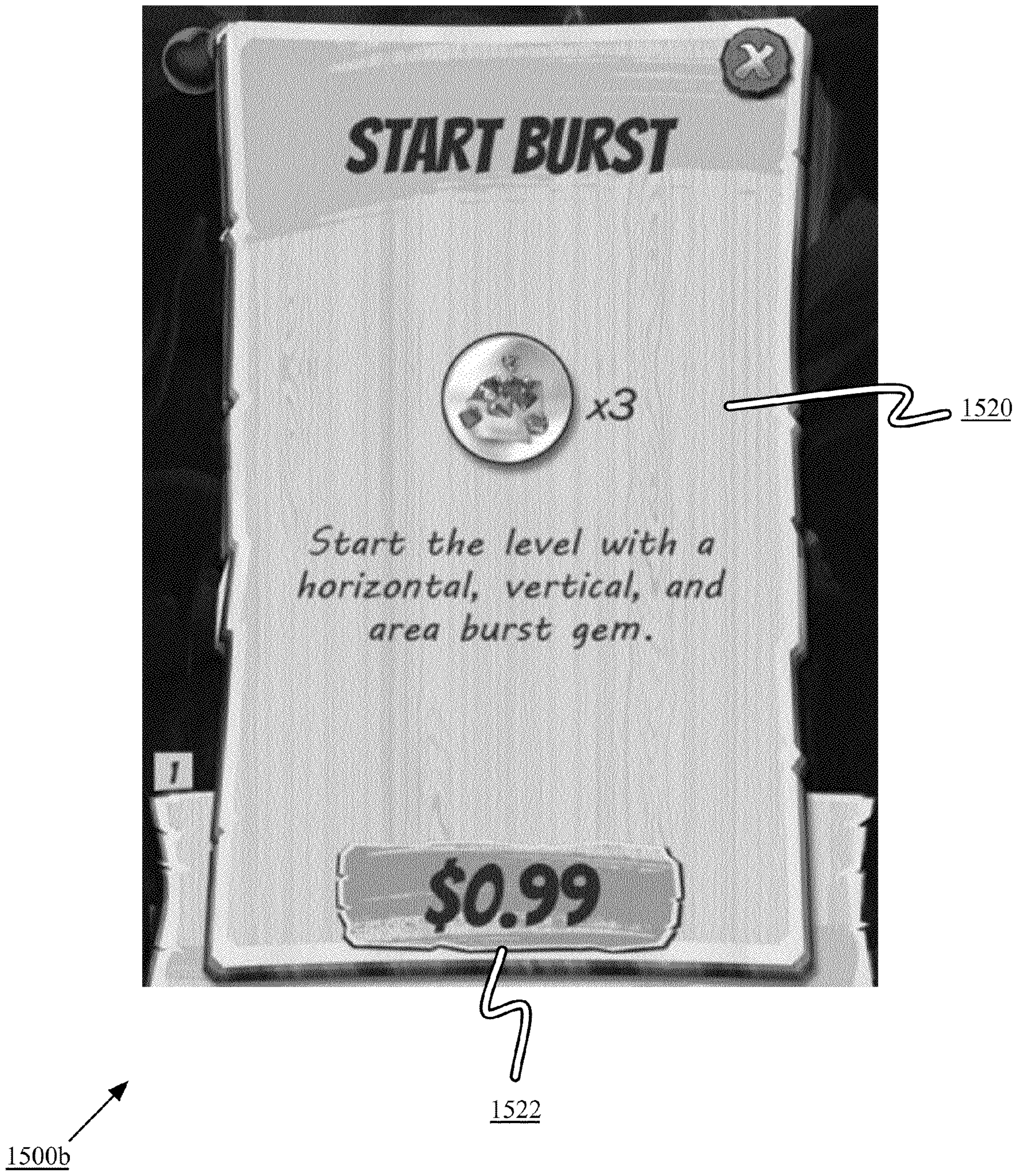

START BURST
x3
Start the level with a horizontal, vertical, and area burst gem.
$0.99
1
1520
1522
1500b

Fig. 15B

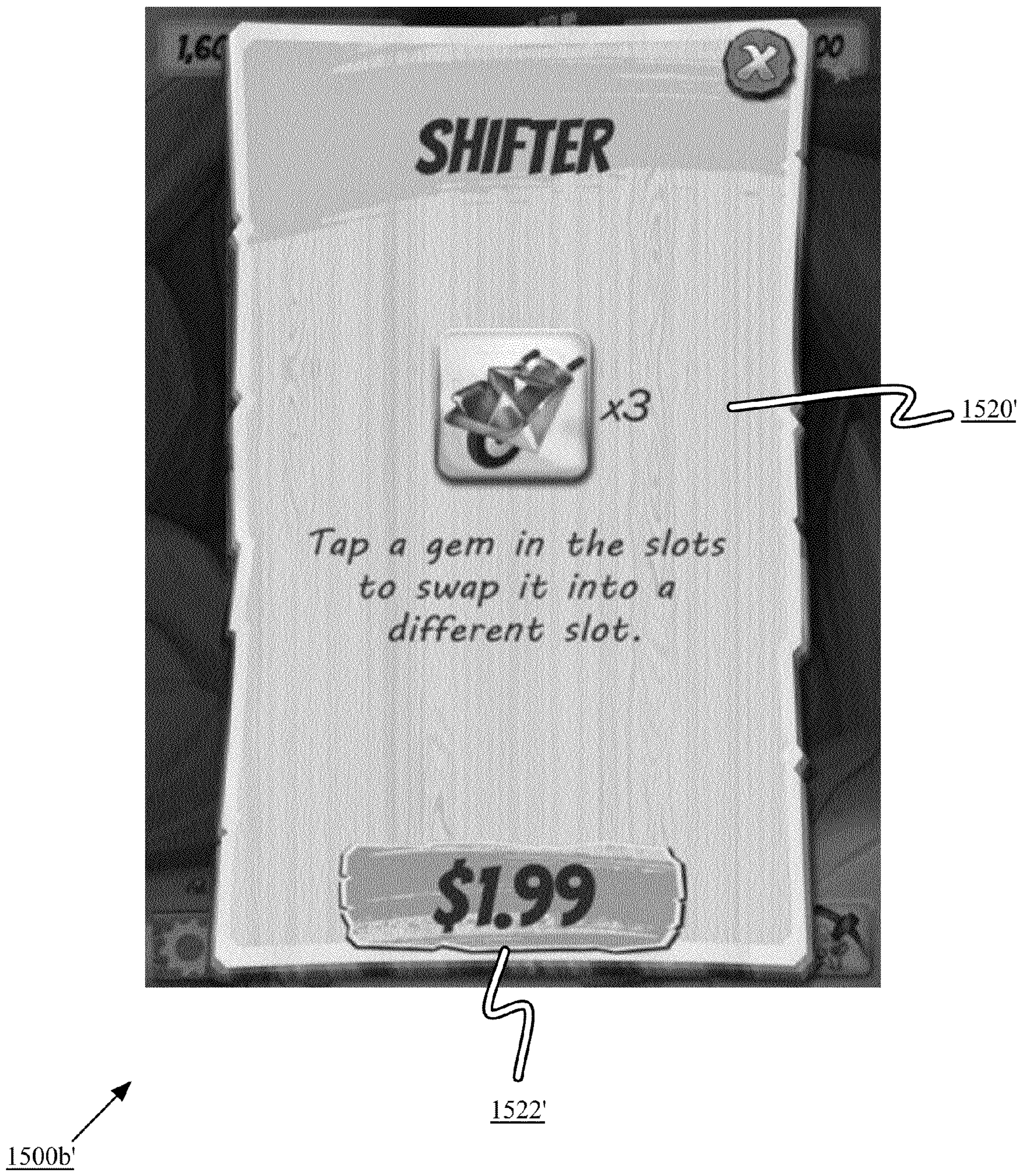

1,60
00
SHIFTER
x3
Tap a gem in the slots to swap it into a different slot.
$1.99
1520'
1522'
1500b'

Fig. 15C

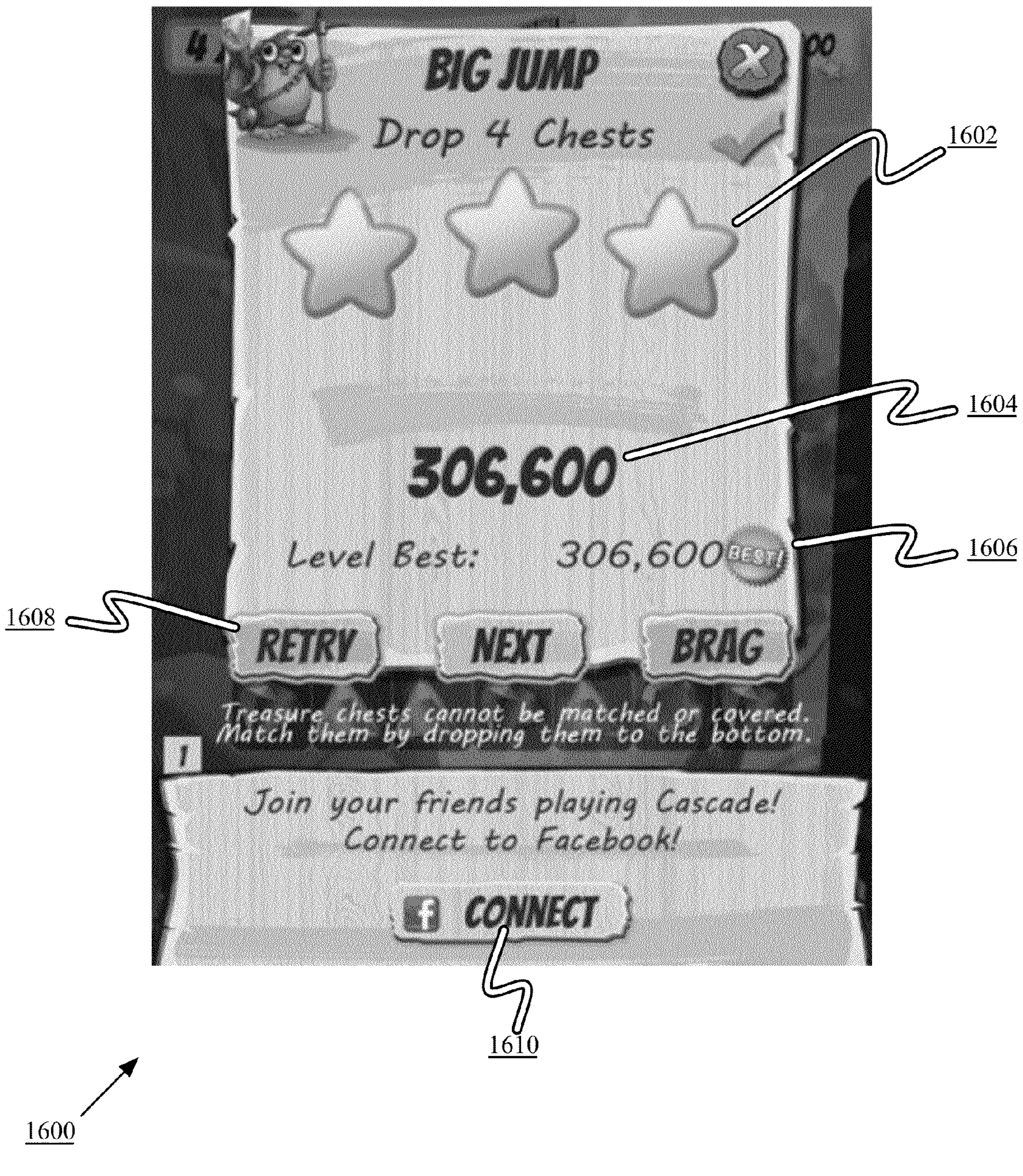

BIG JUMP
Drop 4 Chests
1602
1604
306,600
Level Best: 306,600 BEST!
1606
1608
RETRY
NEXT
BRAG
Treasure chests cannot be matched or covered. Match them by dropping them to the bottom.
1
Join your friends playing Cascade! Connect to Facebook!
CONNECT
1610
1600

Fig. 16

SYSTEMS AND METHODS FOR A TOKEN MATCH GAME

RELATED APPLICATIONS

This application claims priority to and the benefit of U.S. Provisional Application No. 61/766,283, entitled "Systems and Methods for a Token Match Game," filed Feb. 19, 2013, the entirety of which is hereby incorporated by reference.

FIELD OF THE DISCLOSURE

The present disclosure relates to systems and methods for a computer video game. In particular, the present disclosure relates to a token match game utilizing a first random array to match against a second random array.

BACKGROUND OF THE DISCLOSURE

Many users of portable computing devices, such as tablet computers and smart phones, play short video games, frequently referred to as "casual" games. As opposed to many computer games on desktop computers or console computing devices which may require many hours to play through a single game to completion, casual games typically require less time to play and may be used for brief periods of entertainment throughout the day.

Casual games exist in every genre, including action games, sports games, card games, and puzzle games. One subset of the puzzle game genre is the "match-3 game," in which a field or array of icons or tokens are provided to the player. In one common implementation, the player may select a token to swap with an adjacent token in the array. If, after swapping, three or more identical tokens are adjacent in the array, the identical tokens are removed, a player score is incremented, and the resulting empty spots in the array are filled.

Once the initial board or field is filled, typical match-3 games only introduce any randomness when empty spots in the array are filled. In fact, one subset of these games does not introduce any further randomness, and instead have emptying the field through matches to leave the fewest number of remaining tokens as the object of the game. Accordingly, these games may rely more on strategy and long-term planning than luck, which is not preferred by all players.

BRIEF SUMMARY OF THE DISCLOSURE

To provide additional randomness and luck into game play while still allowing for strategy and planning, the systems and methods discussed herein provide an improved match game with a first array of tokens that may be used to replace corresponding tokens in a second array to create a region of adjacent identical tokens for scoring purposes. An m×l array of randomly selected tokens may be provided as a playing field, and a second n×l array of randomly selected tokens may be provided as a hand. The player may select a cell within the m×l array to replace the token in said cell with a token in a corresponding cell of the n×l array. If the replacement results in a region of adjacent identical tokens in the m×l array, the tokens may be removed and the player's score incremented. If no plays are possible from the player's hand, the player may draw a new hand of randomly selected tokens to replace the tokens and/or blank spaces in the n×l array. Play continues until the player has exhausted a predetermined number of opportunities to draw a new hand.

In one aspect, the present disclosure is directed to a method for a token match game. The method includes providing, by a

token generator executed by a processor of a computing device, an m×l array of randomly selected tokens. The method also includes providing, by the token generator, an n×l array of randomly selected tokens. The method further includes receiving, by a rules engine executed by the processor, a selection of a cell within the m×l array. The method further includes determining, by the rules engine, that replacement of a first token in the selected cell within the m×l array with a second token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array. The method also includes removing, by the rules engine, the tokens of the region of adjacent identical tokens within the m×l array, responsive to the determination.

In one embodiment, the method includes incrementing a score for a user, by the rules engine, responsive to removal of the tokens of the region of adjacent identical tokens within the m×l array. In another embodiment, the method includes comprising providing, by the token generator, a number of additional tokens corresponding to the number of removed tokens of the region of adjacent identical tokens within the m×l array. In still another embodiment, the method includes iteratively shifting a token in the m×l array into an adjacent cell not including a token until at least one cell at the edge of the m×l array does not include a token; and providing, by the token generator, at least one new token for the corresponding at least one cell.

In some embodiments, the method includes identifying, by the rules engine, that a token adjacent to the region of adjacent identical tokens within the m×l array is a wild token; and removing, by the rules engine, the wild token and at least one additional token from the m×l array identical to the first token, but not adjacent to the region of adjacent identical tokens. In another embodiment, the method includes identifying, by the rules engine, that no replacement of a third token in a cell within the m×l array with a fourth token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array; and providing, by the token generator, a second n×l array of randomly selected tokens, responsive to the identification. In a further embodiment, the method includes providing an interface element to a user; receiving a selection of the interface element by the user; and providing the third n×l array of randomly selected tokens, responsive to the selection of the interface element by the user. In a still further embodiment, the interface element is a lever. In another further embodiment, the method includes providing the second n×l array of randomly selected tokens further comprises replacing a previous n×l array. In yet another further embodiment, the method includes decrementing a hand counter.

In another aspect, the present disclosure is directed to a system for a token match game. The system includes a computing device comprising a processor executing a token generator and a rules engine. The token generator is configured for: providing an m×l array of randomly selected tokens, and providing an n×l array of randomly selected tokens. The rules engine is configured for receiving a selection of a cell within the m×l array; determining that replacement of a first token in the selected cell within the m×l array with a second token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m x/array; and removing the tokens of the region of adjacent identical tokens within the m×l array, responsive to the determination.

In one embodiment of the system, the rules engine is further configured for incrementing a score for a user, responsive to removal of the tokens of the region of adjacent identical tokens within the m×l array. In another embodiment of the system, the token generator is further configured for providing a number of additional tokens corresponding to the number of removed tokens of the region of adjacent identical tokens within the m×l array.

In some embodiments of the system, the rules engine is further configured for iteratively shifting a token in the m×l array into an adjacent cell not including a token until at least one cell at the edge of the m×l array does not include a token. The token generator is further configured for providing at least one new token for the corresponding at least one cell.

In other embodiments of the system, the rules engine is further configured for identifying that a token adjacent to the region of adjacent identical tokens within the m×l array is a wild token; and removing the wild token and at least one additional token from the m×l array identical to the first token, but not adjacent to the region of adjacent identical tokens.

In some embodiments of the system, the rules engine is further configured for identifying that no replacement of a third token in a cell within the m×l array with a fourth token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m x/array; and the token generator is further configured for providing a second n×l array of randomly selected tokens, responsive to the identification. In a further embodiment, the rules engine is further configured for providing an interface element to a user, and receiving a selection of the interface element by the user; and the token generator is further configured for providing the third n×l array of randomly selected tokens, responsive to the selection of the interface element by the user. In a still further embodiment, the interface element is a lever. In another further embodiment, the token generator is further configured for providing the second n×l array of randomly selected tokens by replacing a previous n×l array. In yet another further embodiment, the rules engine is further configured for decrementing a hand counter, responsive to the token generator providing the second n×l array of randomly selected tokens.

BRIEF DESCRIPTION OF THE DRAWINGS

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawings will be provided by the Office upon request and payment of the necessary fee.

The foregoing and other objects, aspects, features, and advantages of the disclosure will become more apparent and better understood by referring to the following description taken in conjunction with the accompanying drawings, in which:

FIG. **1**A is a block diagram depicting an embodiment of a network environment comprising client devices in communication with server devices;

FIGS. **1**B and **1**C are block diagrams depicting embodiments of computing devices useful in connection with the methods and systems described herein;

FIG. **1**D is a block diagram of an embodiment of a token match game;

FIGS. **2**A-**2**D are diagrams illustrating successive steps of token selection, replacement, and scoring in an embodiment of a token match game;

FIG. **3** is a flow chart of an embodiment of a method for executing a token match game;

FIGS. **4**A-**4**J are screenshots of menu, help, and configuration screens of an embodiment of a token match game;

FIGS. **5**A-**5**C are screenshots illustrating successive steps of token selection, replacement, and scoring in an embodiment of a token match game;

FIGS. **6**A-**6**C are screenshots illustrating successive steps of utilization of a wildcard within a created region of identical tokens in an embodiment of a token match game;

FIGS. **7**A-**7**C are screenshots illustrating successive steps of matching tokens to clear a board in an embodiment of a token match game;

FIGS. **8**A-**8**K are screenshots of help screens of an embodiment of a token match game;

FIGS. **9**A-**9**C are successive screenshots of a bonus wheel of an embodiment of a token match game;

FIGS. **10**A and **10**B are screenshots of embodiments of screens presented upon completion of a token match game;

FIGS. **11**A and **11**B are screenshots of embodiments of a level selection screen for a token match game;

FIGS. **12**A-**12**E are screenshots of embodiments of levels of a token match game;

FIGS. **13**A-**13**B are successive screenshots depicting an embodiment of a token match game with a falling token mechanism;

FIGS. **14**A-**14**B illustrates embodiments of icons for powers and game play boosts for a token match game;

FIG. **14**C illustrates embodiments of icons for displaying or performing various functions on a life meter for an embodiment of a token match game;

FIG. **15**A is a screenshot of an embodiment of a level information screen for a token match game;

FIG. **15**B is a screenshot of an embodiment of a boost purchase screen for a token match game;

FIG. **15**C is a screenshot of an embodiment of a power purchase screen for a token match game; and

FIG. **16** is a screenshot of an embodiment of a level completion screen for a token match game.

DETAILED DESCRIPTION

Prior to discussing specific embodiments of the present solution, it may be helpful to describe aspects of the operating environment as well as associated system components (e.g., hardware elements) in connection with the methods and systems described herein. For example, these system components may be used to provide a token match game to a client device for execution; may be used to communicate information regarding high scores or daily challenges; or for other social networking functions discussed in more detail below. Referring to FIG. **1**A, an embodiment of a network environment is depicted. In brief overview, the network environment includes one or more clients **102***a*-**102***n* (also generally referred to as local machine(s) **102**, client(s) **102**, client node(s) **102**, client machine(s) **102**, client computer(s) **102**, client device(s) **102**, endpoint(s) **102**, or endpoint node(s) **102**) in communication with one or more servers **106***a*-**106***n* (also generally referred to as server(s) **106**, node **106**, or remote machine(s) **106**) via one or more networks **104**. In some embodiments, a client **102** has the capacity to function as both a client node seeking access to resources provided by a server and as a server providing access to hosted resources for other clients **102***a*-**102***n*.

Although FIG. **1**A shows a network **104** between the clients **102** and the servers **106**, the clients **102** and the servers **106** may be on the same network **104**. In some embodiments, there are multiple networks **104** between the clients **102** and the servers **106**. In one of these embodiments, a network **104'** (not shown) may be a private network and a network **104** may be a public network. In another of these embodiments, a network **104** may be a private network and a network **104'** a public network. In still another of these embodiments, networks **104** and **104'** may both be private networks.

The network **104** may be connected via wired or wireless links. Wired links may include Digital Subscriber Line (DSL), coaxial cable lines, or optical fiber lines. The wireless links may include BLUETOOTH, Wi-Fi, Worldwide Interoperability for Microwave Access (WiMAX), an infrared channel or satellite band. The wireless links may also include any cellular network standards used to communicate among mobile devices, including standards that qualify as 1G, 2G, 3G, or 4G. The network standards may qualify as one or more generation of mobile telecommunication standards by fulfilling a specification or standards such as the specifications maintained by International Telecommunication Union. The 3G standards, for example, may correspond to the International Mobile Telecommunications-2000 (IMT-2000) specification, and the 4G standards may correspond to the International Mobile Telecommunications Advanced (IMT-Advanced) specification. Examples of cellular network standards include AMPS, GSM, GPRS, UMTS, LTE, LTE Advanced, Mobile WiMAX, and WiMAX-Advanced. Cellular network standards may use various channel access methods e.g. FDMA, TDMA, CDMA, or SDMA. In some embodiments, different types of data may be transmitted via different links and standards. In other embodiments, the same types of data may be transmitted via different links and standards.

The network **104** may be any type and/or form of network. The geographical scope of the network **104** may vary widely and the network **104** can be a body area network (BAN), a personal area network (PAN), a local-area network (LAN), e.g. Intranet, a metropolitan area network (MAN), a wide area network (WAN), or the Internet. The topology of the network **104** may be of any form and may include, e.g., any of the following: point-to-point, bus, star, ring, mesh, or tree. The network **104** may be an overlay network which is virtual and sits on top of one or more layers of other networks **104'**. The network **104** may be of any such network topology as known to those ordinarily skilled in the art capable of supporting the operations described herein. The network **104** may utilize different techniques and layers or stacks of protocols, including, e.g., the Ethernet protocol, the internet protocol suite (TCP/IP), the ATM (Asynchronous Transfer Mode) technique, the SONET (Synchronous Optical Networking) protocol, or the SDH (Synchronous Digital Hierarchy) protocol. The TCP/IP internet protocol suite may include application layer, transport layer, internet layer (including, e.g., IPv6), or the link layer. The network **104** may be a type of a broadcast network, a telecommunications network, a data communication network, or a computer network.

In some embodiments, the system may include multiple, logically-grouped servers **106**. In one of these embodiments, the logical group of servers may be referred to as a server farm **38** or a machine farm **38**. In another of these embodiments, the servers **106** may be geographically dispersed. In other embodiments, a machine farm **38** may be administered as a single entity. In still other embodiments, the machine farm **38** includes a plurality of machine farms **38**. The servers **106** within each machine farm **38** can be heterogeneous—one or more of the servers **106** or machines **106** can operate according to one type of operating system platform (e.g., WINDOWS NT, manufactured by Microsoft Corp. of Redmond, Wash.), while one or more of the other servers **106** can operate on according to another type of operating system platform (e.g., Unix, Linux, or Mac OS X).

In one embodiment, servers **106** in the machine farm **38** may be stored in high-density rack systems, along with associated storage systems, and located in an enterprise data center. In this embodiment, consolidating the servers **106** in this way may improve system manageability, data security, the physical security of the system, and system performance by locating servers **106** and high performance storage systems on localized high performance networks. Centralizing the servers **106** and storage systems and coupling them with advanced system management tools allows more efficient use of server resources.

The servers **106** of each machine farm **38** do not need to be physically proximate to another server **106** in the same machine farm **38**. Thus, the group of servers **106** logically grouped as a machine farm **38** may be interconnected using a wide-area network (WAN) connection or a metropolitan-area network (MAN) connection. For example, a machine farm **38** may include servers **106** physically located in different continents or different regions of a continent, country, state, city, campus, or room. Data transmission speeds between servers **106** in the machine farm **38** can be increased if the servers **106** are connected using a local-area network (LAN) connection or some form of direct connection. Additionally, a heterogeneous machine farm **38** may include one or more servers **106** operating according to a type of operating system, while one or more other servers **106** execute one or more types of hypervisors rather than operating systems. In these embodiments, hypervisors may be used to emulate virtual hardware, partition physical hardware, virtualize physical hardware, and execute virtual machines that provide access to computing environments, allowing multiple operating systems to run concurrently on a host computer. Native hypervisors may run directly on the host computer. Hypervisors may include VMware ESX/ESXi, manufactured by VMWare, Inc., of Palo Alto, Calif.; the Xen hypervisor, an open source product whose development is overseen by Citrix Systems, Inc.; the HYPER-V hypervisors provided by Microsoft or others. Hosted hypervisors may run within an operating system on a second software level. Examples of hosted hypervisors may include VMware Workstation and VIRTUALBOX.

Management of the machine farm **38** may be de-centralized. For example, one or more servers **106** may comprise components, subsystems and modules to support one or more management services for the machine farm **38**. In one of these embodiments, one or more servers **106** provide functionality for management of dynamic data, including techniques for handling failover, data replication, and increasing the robustness of the machine farm **38**. Each server **106** may communicate with a persistent store and, in some embodiments, with a dynamic store.

Server **106** may be a file server, application server, web server, proxy server, appliance, network appliance, gateway, gateway server, virtualization server, deployment server, SSL VPN server, or firewall. In one embodiment, the server **106** may be referred to as a remote machine or a node. In another embodiment, a plurality of nodes **290** may be in the path between any two communicating servers.

The client **102** and server **106** may be deployed as and/or executed on any type and form of computing device, e.g. a computer, network device or appliance capable of communicating on any type and form of network and performing the operations described herein. In many embodiments, the client **102** may comprise an Apple IPHONE smart phone, an Apple IPAD tablet computer, an Android operating system-based smart phone or tablet such as a Samsung Galaxy Tab, or any other such device including desktop computers, laptop computers, tablet computers, smart phones, or other devices. FIGS. **1**B and **1**C depict block diagrams of a computing device **100** useful for practicing an embodiment of the client **102** or a server **106**. As shown in FIGS. **1**B and **1**C, each computing device **100** includes a central processing unit **121**, and a main memory unit **122**. As shown in FIG. **1**B. a computing device **100** may include a storage device **128**, an installation device **116**, a network interface **118**, an I/O controller **123**, display devices **124***a*-**124***n*, a keyboard **126** and a pointing device **127**, e.g. a mouse. The storage device **128** may include, without limitation, an operating system, software, and a token match game or match game **120**. As shown in FIG. **1**C, each computing device **100** may also include additional optional elements, e.g. a memory port **103**, a bridge **170**, one or more input/output devices **130***a*-**130***n* (generally referred to using reference numeral **130**), and a cache memory **140** in communication with the central processing unit **121**.

The central processing unit **121** is any logic circuitry that responds to and processes instructions fetched from the main memory unit **122**. In many embodiments, the central processing unit **121** is provided by a microprocessor unit, e.g.: those manufactured by Intel Corporation of Mountain View, Calif.; those manufactured by Motorola Corporation of Schaumburg, Ill.; the ARM processor and TEGRA system on a chip (SoC) manufactured by Nvidia of Santa Clara, Calif.; the POWER7 processor, those manufactured by International Business Machines of White Plains, N.Y.; or those manufactured by Advanced Micro Devices of Sunnyvale, Calif. The computing device **100** may be based on any of these processors, or any other processor capable of operating as described herein. The central processing unit **121** may utilize instruction level parallelism, thread level parallelism, different levels of cache, and multi-core processors. A multi-core processor may include two or more processing units on a single computing component. Examples of a multi-core processors include the AMD PHENOM IIX2, INTEL CORE i5 and INTEL CORE i7.

Main memory unit **122** may include one or more memory chips capable of storing data and allowing any storage location to be directly accessed by the microprocessor **121**. Main memory unit **122** may be volatile and faster than storage **128** memory. Main memory units **122** may be Dynamic random access memory (DRAM) or any variants, including static random access memory (SRAM), Burst SRAM or SynchBurst SRAM (BSRAM), Fast Page Mode DRAM (FPM DRAM), Enhanced DRAM (EDRAM), Extended Data Output RAM (EDO RAM), Extended Data Output DRAM (EDO DRAM), Burst Extended Data Output DRAM (BEDO DRAM), Single Data Rate Synchronous DRAM (SDR SDRAM), Double Data Rate SDRAM (DDR SDRAM), Direct Rambus DRAM (DRDRAM), or Extreme Data Rate DRAM (XDR DRAM). In some embodiments, the main memory **122** or the storage **128** may be non-volatile; e.g., non-volatile read access memory (NVRAM), flash memory non-volatile static RAM (nvSRAM), Ferroelectric RAM (FeRAM), Magnetoresistive RAM (MRAM), Phase-change memory (PRAM), conductive-bridging RAM (CBRAM), Silicon-Oxide-Nitride-Oxide-Silicon (SONOS), Resistive RAM (RRAM), Racetrack, Nano-RAM (NRAM), or Millipede memory. The main memory **122** may be based on any of the above described memory chips, or any other available memory chips capable of operating as described herein. In the embodiment shown in FIG. **1**B, the processor **121** communicates with main memory **122** via a system bus **150** (described in more detail below). FIG. **1**C depicts an embodiment of a computing device **100** in which the processor communicates directly with main memory **122** via a memory port **103**. For example, in FIG. **1**C the main memory **122** may be DRDRAM.

FIG. **1**C depicts an embodiment in which the main processor **121** communicates directly with cache memory **140** via a secondary bus, sometimes referred to as a backside bus. In other embodiments, the main processor **121** communicates

with cache memory **140** using the system bus **150**. Cache memory **140** typically has a faster response time than main memory **122** and is typically provided by SRAM, BSRAM, or EDRAM. In the embodiment shown in FIG. **1**C, the processor **121** communicates with various I/O devices **130** via a local system bus **150**. Various buses may be used to connect the central processing unit **121** to any of the I/O devices **130**, including a PCI bus, a PCI-X bus, or a PCI-Express bus, or a NuBus. For embodiments in which the I/O device is a video display **124**, the processor **121** may use an Advanced Graphics Port (AGP) to communicate with the display **124** or the I/O controller **123** for the display **124**. FIG. **1**D depicts an embodiment of a computer **100** in which the main processor **121** communicates directly with I/O device **130***b* or other processors **121'** via HYPERTRANSPORT, RAPIDIO, or INFINIBAND communications technology. FIG. **1**C also depicts an embodiment in which local busses and direct communication are mixed: the processor **121** communicates with I/O device **130***a* using a local interconnect bus while communicating with I/O device **130***b* directly.

A wide variety of I/O devices **130***a*-**130***n* may be present in the computing device **100**. Input devices may include keyboards, mice, trackpads, trackballs, touchpads, touch mice, multi-touch touchpads and touch mice, microphones, multi-array microphones, drawing tablets, cameras, single-lens reflex camera (SLR), digital SLR (DSLR), CMOS sensors, accelerometers, infrared optical sensors, pressure sensors, magnetometer sensors, angular rate sensors, depth sensors, proximity sensors, ambient light sensors, gyroscopic sensors, or other sensors. Output devices may include video displays, graphical displays, speakers, headphones, inkjet printers, laser printers, and 3D printers.

Devices **130***a*-**130***n* may include a combination of multiple input or output devices, including, e.g., Microsoft KINECT, Nintendo Wiimote for the WII, Nintendo WII U GAMEPAD, and may include discrete computing devices acting as an input or output devices, such as an Apple IPHONE. Some devices **130***a*-**130***n* allow gesture recognition inputs through combining some of the inputs and outputs. Some devices **130***a*-**130***n* provide for facial recognition which may be utilized as an input for different purposes including authentication and other commands. Some devices **130***a*-**130***n* provide for voice recognition and inputs, including, e.g., Microsoft KINECT, SIRI for IPHONE by Apple, Google Now or Google Voice Search.

Additional devices **130***a*-**130***n* have both input and output capabilities, including, e.g., haptic feedback devices, touchscreen displays, or multi-touch displays. Touchscreen, multi-touch displays, touchpads, touch mice, or other touch sensing devices may use different technologies to sense touch, including, e.g., capacitive, surface capacitive, projected capacitive touch (PCT), in-cell capacitive, resistive, infrared, waveguide, dispersive signal touch (DST), in-cell optical, surface acoustic wave (SAW), bending wave touch (BWT), or force-based sensing technologies. Some multi-touch devices may allow two or more contact points with the surface, allowing advanced functionality including, e.g., pinch, spread, rotate, scroll, or other gestures. Some touchscreen devices, including, e.g., Microsoft PIXELSENSE or Multi-Touch Collaboration Wall, may have larger surfaces, such as on a table-top or on a wall, and may also interact with other electronic devices. Some I/O devices **130***a*-**130***n*, display devices **124***a*-**124***n* or group of devices may be augment reality devices. The I/O devices may be controlled by an I/O controller **123** as shown in FIG. **1**B. The I/O controller may control one or more I/O devices, such as, e.g., a keyboard **126** and a pointing device **127**, e.g., a mouse or optical pen.

Furthermore, an I/O device may also provide storage and/or an installation medium **116** for the computing device **100**. In still other embodiments, the computing device **100** may provide USB connections (not shown) to receive handheld USB storage devices. In further embodiments, an I/O device **130** may be a bridge between the system bus **150** and an external communication bus, e.g. a USB bus, a SCSI bus, a FireWire bus, an Ethernet bus, a Gigabit Ethernet bus, a Fibre Channel bus, or a Thunderbolt bus.

In some embodiments, display devices **124***a*-**124***n* may be connected to I/O controller **123**. Display devices may include, e.g., liquid crystal displays (LCD), thin film transistor LCD (TFT-LCD), blue phase LCD, electronic papers (e-ink) displays, flexile displays, light emitting diode displays (LED), digital light processing (DLP) displays, liquid crystal on silicon (LCOS) displays, organic light-emitting diode (OLED) displays, active-matrix organic light-emitting diode (AMOLED) displays, liquid crystal laser displays, time-multiplexed optical shutter (TMOS) displays, or 3D displays. Examples of 3D displays may use, e.g. stereoscopy, polarization filters, active shutters, or autostereoscopy. Display devices **124***a*-**124***n* may also be a head-mounted display (HMD). In some embodiments, display devices **124***a*-**124***n* or the corresponding I/O controllers **123** may be controlled through or have hardware support for OPENGL or DIRECTX API or other graphics libraries.

In some embodiments, the computing device **100** may include or connect to multiple display devices **124***a*-**124***n*, which each may be of the same or different type and/or form. As such, any of the I/O devices **130***a*-**130***n* and/or the I/O controller **123** may include any type and/or form of suitable hardware, software, or combination of hardware and software to support, enable or provide for the connection and use of multiple display devices **124***a*-**124***n* by the computing device **100**. For example, the computing device **100** may include any type and/or form of video adapter, video card, driver, and/or library to interface, communicate, connect or otherwise use the display devices **124***a*-**124***n*. In one embodiment, a video adapter may include multiple connectors to interface to multiple display devices **124***a*-**124***n*. In other embodiments, the computing device **100** may include multiple video adapters, with each video adapter connected to one or more of the display devices **124***a*-**124***n*. In some embodiments, any portion of the operating system of the computing device **100** may be configured for using multiple displays **124***a*-**124***n*. In other embodiments, one or more of the display devices **124***a*-**124***n* may be provided by one or more other computing devices **100***a* or **100***b* connected to the computing device **100**, via the network **104**. In some embodiments software may be designed and constructed to use another computer's display device as a second display device **124***a* for the computing device **100**. For example, in one embodiment, an Apple iPad may connect to a computing device **100** and use the display of the device **100** as an additional display screen that may be used as an extended desktop. One ordinarily skilled in the art will recognize and appreciate the various ways and embodiments that a computing device **100** may be configured to have multiple display devices **124***a*-**124***n*.

Referring again to FIG. **1**B, the computing device **100** may comprise a storage device **128** (e.g. one or more hard disk drives or redundant arrays of independent disks) for storing an operating system or other related software, and for storing application software programs such as any program related to the token match game software **120**. Examples of storage device **128** include, e.g., hard disk drive (HDD); optical drive including CD drive, DVD drive, or BLU-RAY drive; solid-state drive (SSD); USB flash drive; or any other device suitable for storing data. Some storage devices may include multiple volatile and non-volatile memories, including, e.g., solid state hybrid drives that combine hard disks with solid state cache. Some storage devices **128** may be non-volatile, mutable, or read-only. Some storage devices **128** may be internal and connect to the computing device **100** via a bus **150**. Other storage devices **128** may be external and connect to the computing device **100** via a I/O device **130** that provides an external bus. Still other storage devices **128** may connect to the computing device **100** via the network interface **118** over a network **104**, including, e.g., the Remote Disk for the MACBOOK AIR by Apple. Some client devices **100** may not require a non-volatile storage device **128** and may be thin clients or zero clients **102**. Some storage devices **128** may also be used as a installation device **116**, and may be suitable for installing software and programs. In some implementations, the operating system and the software can be run from a bootable medium, for example, a bootable CD, e.g. KNOPPIX, available as a GNU/Linux distribution from knoppix.net.

Client device **100** may also install software or application from an application distribution platform. Examples of application distribution platforms include the App Store for iOS provided by Apple, Inc., the Mac App Store provided by Apple, Inc., GOOGLE PLAY for Android OS provided by Google Inc., Chrome Webstore for CHROME OS provided by Google Inc., and Amazon Appstore for Android OS and KINDLE FIRE provided by Amazon.com, Inc. An application distribution platform may facilitate installation of software on a client device **102**. An application distribution platform may include a repository of applications on a server **106** or a cloud **108**, which the clients **102***a*-**102***n* may access over a network **104**. An application distribution platform may include application developed and provided by various developers. A user of a client device **102** may select, purchase and/or download an application via the application distribution platform.

Furthermore, the computing device **100** may include a network interface **118** to interface to the network **104** through a variety of connections including, but not limited to, standard telephone lines LAN or WAN links (e.g., 802.11, T1, T3, Gigabit Ethernet, Infiniband), broadband connections (e.g., ISDN, Frame Relay, ATM, Gigabit Ethernet, Ethernet-over-SONET, ADSL, VDSL, BPON, GPON, fiber optical including FiOS), wireless connections, cellular connections, or some combination of any or all of the above. Connections can be established using a variety of communication protocols (e.g., TCP/IP, Ethernet, ARCNET, SONET, SDH, Fiber Distributed Data Interface (FDDI), IEEE 802.11a/b/g/n/ac CDMA, GSM, WiMax and direct asynchronous connections). In one embodiment, the computing device **100** communicates with other computing devices **100'** via any type and/or form of gateway or tunneling protocol e.g. Secure Socket Layer (SSL) or Transport Layer Security (TLS), or the Citrix Gateway Protocol manufactured by Citrix Systems, Inc. of Ft. Lauderdale, Fla. The network interface **118** may comprise a built-in network adapter, network interface card, PCMCIA network card, EXPRESSCARD network card, card bus network adapter, wireless network adapter, USB network adapter, modem or any other device suitable for interfacing the computing device **100** to any type of network capable of communication and performing the operations described herein.

A computing device **100** of the sort depicted in FIGS. **1**B and **1**C may operate under the control of an operating system, which controls scheduling of tasks and access to system resources. The computing device **100** can be running any operating system such as any of the versions of the MICROSOFT WINDOWS operating systems, the different releases of the Unix and Linux operating systems, any version of the MAC OS for Macintosh computers, any embedded operating system, any real-time operating system, any open source operating system, any proprietary operating system, any operating systems for mobile computing devices, or any other operating system capable of running on the computing device and performing the operations described herein. Typical operating systems include, but are not limited to: WINDOWS 2000, WINDOWS Server 2012, WINDOWS CE, WINDOWS Phone, WINDOWS XP, WINDOWS VISTA, and WINDOWS 7, WINDOWS RT, and WINDOWS 8 all of which are manufactured by Microsoft Corporation of Redmond, Wash.; MAC OS and iOS, manufactured by Apple, Inc. of Cupertino, Calif.; and Linux, a freely-available operating system, e.g. Linux Mint distribution ("distro") or Ubuntu, distributed by Canonical Ltd. of London, United Kingdom; or Unix or other Unix-like derivative operating systems; and Android, designed by Google, of Mountain View, Calif., among others. Some operating systems, including, e.g., the CHROME OS by Google, may be used on zero clients or thin clients, including, e.g., CHROMEBOOKS.

The computer system **100** can be any workstation, telephone, desktop computer, laptop or notebook computer, netbook, ULTRABOOK, tablet, server, handheld computer, mobile telephone, smartphone or other portable telecommunications device, media playing device, a gaming system, mobile computing device, or any other type and/or form of computing, telecommunications or media device that is capable of communication. The computer system **100** has sufficient processor power and memory capacity to perform the operations described herein. In some embodiments, the computing device **100** may have different processors, operating systems, and input devices consistent with the device. The Samsung GALAXY smartphones, e.g., operate under the control of Android operating system developed by Google, Inc. GALAXY smartphones receive input via a touch interface.

In some embodiments, the computing device **100** is a gaming system. For example, the computer system **100** may comprise a PLAYSTATION 3, or PERSONAL PLAYSTATION PORTABLE (PSP), or a PLAYSTATION VITA device manufactured by the Sony Corporation of Tokyo, Japan, a NINTENDO DS, NINTENDO 3DS, NINTENDO WII, or a NINTENDO WII U device manufactured by Nintendo Co., Ltd., of Kyoto, Japan, an XBOX 360 device manufactured by the Microsoft Corporation of Redmond, Wash.

In some embodiments, the computing device **100** is a digital audio player such as the Apple IPOD, IPOD Touch, and IPOD NANO lines of devices, manufactured by Apple Computer of Cupertino, Calif. Some digital audio players may have other functionality, including, e.g., a gaming system or any functionality made available by an application from a digital application distribution platform. For example, the IPOD Touch may access the Apple App Store. In some embodiments, the computing device **100** is a portable media player or digital audio player supporting file formats including, but not limited to, MP3, WAV, M4A/AAC, WMA Protected AAC, RIFF, Audible audiobook, Apple Lossless audio file formats and .mov, .m4v, and .mp4MPEG-4 (H.264/MPEG-4 AVC) video file formats.

In some embodiments, the computing device **100** is a tablet e.g. the IPAD line of devices by Apple; GALAXY TAB family of devices by Samsung; or KINDLE FIRE, by Amazon.com, Inc. of Seattle, Wash. In other embodiments, the computing device **100** is a eBook reader, e.g. the KINDLE family of devices by Amazon.com, or NOOK family of devices by Barnes & Noble, Inc. of New York City, N.Y.

In some embodiments, the communications device **102** includes a combination of devices, e.g. a smartphone combined with a digital audio player or portable media player. For example, one of these embodiments is a smartphone, e.g. the IPHONE family of smartphones manufactured by Apple, Inc.; a Samsung GALAXY family of smartphones manufactured by Samsung, Inc; or a Motorola DROID family of smartphones. In yet another embodiment, the communications device **102** is a laptop or desktop computer equipped with a web browser and a microphone and speaker system, e.g. a telephony headset. In these embodiments, the communications devices **102** are web-enabled and can receive and initiate phone calls. In some embodiments, a laptop or desktop computer is also equipped with a webcam or other video capture device that enables video chat and video call.

In some embodiments, the status of one or more machines **102**, **106** in the network **104** is monitored, generally as part of network management. In one of these embodiments, the status of a machine may include an identification of load information (e.g., the number of processes on the machine, CPU and memory utilization), of port information (e.g., the number of available communication ports and the port addresses), or of session status (e.g., the duration and type of processes, and whether a process is active or idle). In another of these embodiments, this information may be identified by a plurality of metrics, and the plurality of metrics can be applied at least in part towards decisions in load distribution, network traffic management, and network failure recovery as well as any aspects of operations of the present solution described herein. Aspects of the operating environments and components described above will become apparent in the context of the systems and methods disclosed herein.

Referring now to FIG. **1D**, illustrated is a block diagram of an embodiment of a token match game **120**. A token match game **120** may comprise an application, applet, routine, game engine, or other executable logic for providing an interactive matching game to a player or user, and may be variously referred to as a match game, token match game, game engine, game, game application, application, or by any other such term. In many embodiments, a token match game **120** may be purchased, downloaded, and installed via an online application store such as the Apple App Store or Google Play. In other embodiments, a token match game **120** may be presented as a web application in Flash, Java, HTML5, or any other such programming language. In some embodiments, a token match game **120** may be programmed in a cross-platform language, such as Unity by Unity Technologies of San Francisco, Calif., and may be available in several formats.

In brief overview, a token match game, sometimes referred to as a match game or a slot-match game, may comprise a game field or playing field **150**, which may comprise two arrays, discussed in more detail below. The match game **120** may also comprise a token generator **152** for generating or selecting tokens to fill the two arrays. In some embodiments, the match game **120** may comprise a spin counter **154** for counting a number of spins or rounds available to a player, and/or a bonus counter **156** for storing a score multiplier value. In some embodiments, the match game **120** may comprise a rules engine **158** for identifying adjacent matching tokens, wild card progressions, or board clearances. In some embodiments, the match game **120** may include a score counter **160** for keeping track of a player's score, as well as a score database **162** for retaining previous high scores. The match game **120** may include a network agent **164** for communicating with social networking services or email for communicating a player's score or challenging other players; for receiving regional or global high scores; or for receiving game updates. In some embodiments, the match game may include a challenge generator **166** for dynamically generating a periodic challenge, such as a daily challenge, and/or may receive challenge information via network agent **164**. In other embodiments, the match game may have one or more predetermined levels, which may be selected by a player. Levels may vary in difficulty, based on different sizes or shapes of boards; different numbers of spins or rounds of play allowed; different score goals; different numbers of token types; the presence or absence of tokens having special features or properties; or any other such feature.

Still referring to FIG. **1**D and in more detail, in some embodiments, a match game **120** may comprise a game field **150**. Game field **150** may comprise an array, data table, database, or other data format for identifying tokens in one or more arrays of a game. Referring to FIGS. **2**A-**2**D, illustrated are diagrams illustrating successive steps of token selection, replacement, and scoring in an embodiment of a token match game **120**. As shown, the game field **150** may comprise two arrays, **202**, **204**. The first array **202** may be referred to as a playing field, in-play field, or by similar terms, and may have a dimension of l×m In some embodiments, as shown, l and m may be identical values and the array may be square, while in other embodiments, the array may be rectangular. In some embodiments, the match game **120** may have different modes including "small boards" and "large boards" with correspondingly different values of l and m, such as 6×7 for a "small" board and 7×8 for a "large" board. Other values and sizes may be used, as well as other relative descriptors, including "tiny", "normal", "big", "huge", or any other value. In some embodiments, a user or player may be able to specify a size of one or both of l and m.

The second array **204** may be referred to as a "hand" or by a similar term, and may have a dimension of l×n. Each cell in array **204** may correspond to a column or row of cells in first array **202** (depending on orientation of the second array **204** to the first array **202**). For example, in implementations using the orientation shown, each cell in array **204** may correspond to a column of cells in first array **202**, such that a player may swap any token in the column of first array **202** with the token in the corresponding cell of second array **204**.

As shown, each cell may include a token, which may be in various shapes and/or colors **206***a*-**206***e*, referred to generally as token(s) **206**. In some embodiments, tokens **206** may be referred to as "gems", "coins", "cards", "icons", "sprites", "items", or any other such identifier. Although shown as polyhedrons, tokens **206** may also comprise playing cards of different values such as jacks, queens, kings, and aces; alphanumeric icons; Greek letters or symbols; blocks of different colors and/or patterns; icons of different types of candy, foods, or animals; or any other type of distinct shapes, letters, colors, symbols, portraits, devices, or icons.

Referring now to FIG. **2**B, in play, a player may select a cell **208***a* of first array **202** (illustrated in bold line) to replace the token **206** within said cell **208***a* with a token in a corresponding cell **208***b* of second array **204** (illustrated in bold line). As discussed above, cell **208***b* may correspond to any cell in the corresponding column (or row, depending on orientation) of first array **202**. By replacing the token **206** in cell **208***a* with the token **206** in cell **208***b*, the player may create a region **210** of adjacent identical tokens **206** (illustrated in dashed line) as shown in FIG. **2**C. In some implementations, the player may freely replace any token in a cell **208***a*, while in other implementations, the player may only replace a token in a cell **208***a* if it results in creation of a region **210** of adjacent identical

tokens. In many implementations, the region **210** may have a minimum size, such as three adjacent tokens, and the player may not replace the token in cell **208***a* if it results in creation of a region **210** of less than the minimum size.

Although shown as a non-linear region **210**, in some embodiments or game play modes, the region **210** may be constrained to a single line. For example, in one such embodiment, a player may select a cell to replace with a token from a corresponding cell in the second array **204** and create a line of three adjacent or more tokens. These tokens may then be removed. Lines may be vertical, horizontal, or, in some embodiments, diagonal.

Once a region of adjacent identical tokens **210** has been created, the tokens within the region **210** may be removed and the player may receive a score. In some embodiments, the player may receive a score of a predetermined value multiplied by the number of tokens within the region. For example, given a value of 100 points, generating a region of five tokens may result in a score of 500 points, while generating a region of eight tokens may result in a score of 800 points. In other embodiments, the player may receive a score of a predetermined value raised to a power of the number of tokens within the region, such as 2^n points. Other scoring values may be used, such as bonuses for generating a region of seven tokens. Once the tokens in region **210** are removed, resulting empty cells in array **202** may be filled in. In some embodiments, as shown in FIG. **2**D, tokens in cells of positions above the region **210** in the array **202** may be lowered to fill the empty spaces (shown in dotted line as region **212**). The resulting empty spaces may thus be raised to the top of the array (region **214** in dotted line), and new tokens **206** may be selected randomly to fill said empty spaces. This allows the player to apply some strategy through removal of tokens in lower spaces in the array to shift tokens in higher spaces into new adjacent regions. In many embodiments, tokens in the array may only be shifted in a single direction, e.g. downwards, as shown in FIG. **2**D. In other embodiments, described in more detail below, tokens in the array may be shifted in two directions, e.g. downwards and sideways. As shown, in many embodiments, cell **208***b* in second array **204** may not be filled in with a new token. In such embodiments, the player may be required to utilize all tokens in their "hand" or array **204** before drawing a new "hand".

In some embodiments, the region **210** may be removed once per player selection. In other embodiments, after removal and shifting of other tokens to fill empty spaces, if the resulting configuration includes other regions of adjacent tokens, these other regions may be removed. This may sometimes be referred to as a "combo" or combination move. Such embodiments may thus allow for a series of successive region-removal steps, which may be accompanied by higher score multipliers or score values. For example, as discussed above, in one embodiment or game play mode, regions **210** may be constrained to vertical, horizontal, and/or diagonal lines. In one such embodiment, after a player selects a cell and creates a line of three or more adjacent identical tokens, the line may be removed, other tokens may be shifted to fill the empty cells, and new tokens may be randomly selected to fill cells at the edge of the first array. If the first array subsequently contains one or more lines of at least three adjacent identical tokens, these lines may also be removed and the player's score incremented. This removal of lines or regions, shift of tokens, and scanning of the array may be repeated iteratively until no more lines or regions of at least three adjacent identical tokens exist in the first array, at which point regular play may continue.

Returning now to FIG. **1**D, the match game **120** may include a token generator **152**. As discussed above, tokens **206** may be randomly selected to fill in spaces in array **202**, **204**. Accordingly, token generator **152** may comprise a random number generator or pseudo-random number generator, and/or may calculate a modulus i of a generated random number with i equal to the number of different tokens to select one or more tokens to add to array **202** or **204** to fill empty spaces. In some embodiments, the token generator **152** may select tokens from a subset of the different tokens available. For example, in one such embodiment, the token generator **152** may select tokens from a first subset for filling in array **202** (such as a base set of tokens), and may select tokens from a second subset for filling in array **204** (such as the base set of tokens, plus wildcards or wild gems, keys, or other special tokens, discussed in more detail below). Accordingly, "randomly selected" may refer to a selection of tokens via a random or pseudo-random number generator, and/or may refer to a selection of a first set of one or more tokens randomly and a second set of one more tokens non-randomly. For example, the token generator may select five tokens for an array **204** randomly and select a special or wild token, discussed in more detail below, to be used as a sixth token in array **204**. In some embodiments, the token generator may select all tokens for an array non-randomly, such as responsive to a player- or rules engine-triggered event (e.g. a boost or power, discussed in more detail below).

In some embodiments, the match game **120** may include a spin counter **154**. Spin counter **154** may comprise a counter that is decremented (or incremented to eventually reach a predetermined final value) with each "round" of play in which the player draws a new "hand" to refill array **204**. In some embodiments, counter **154** may be referred to as a spin counter because the mechanism for requesting or drawing a new hand may comprise pulling a simulated lever of a slot machine to "spin" the cells of array **204** to new values. In other embodiments, counter **154** may be referred to as a "round" counter, "life" counter, or any other such term. Spin counter **154** may be set to an initial value that may be varied responsive to difficulty of the game, time to play, or other such features, and may be set automatically or by the player (or, conversely, spin counter **154** may be set to an initial value of 0 or 1 and incremented to a final value set responsive to difficult, time to play, or other such features).

In some embodiments, the match game **120** may include a bonus counter or multiplier counter **156**. In one such embodiment, the bonus counter or multiplier counter may be incremented each time the player successfully uses every token in their "hand" or array **204** to generate adjacent regions **210** in array **202**. The counter **156** may be incremented, and array **204** may be refilled with randomly selected tokens, and the value of counter **156** may be applied as a multiplier to the score for each token removed. For example, if tokens are normally worth 100 points such that matching a region of four adjacent tokens is 400 points, if the player successfully plays every token in array **204**, the counter **156** may be incremented to "2" and a new hand drawn. If the player subsequently matches a region of four adjacent tokens, the player may receive a score of 800 points.

In many embodiments, the value of counter **156** may be reset if the player cannot match any tokens in array **204** and draws a new hand. In a further embodiment, the base value of counter **156** may be permanently increased (for the duration of a game) by matching special tokens or completing a level, discussed in more detail below. If the player subsequently draws a new hand, the counter **156** may be reset to the permanently increased base value. For example, in one such embodiment, the player may use all tokens in array **204** and increase the counter **156** to "2". The player may then complete the level or match a special token and increase the counter to "3" and permanently increment the base value to "2". The player may then use all of the tokens in array **204** again, and increase counter **156** to "4". If the player then draws a new hand, the counter may be reset to the increased value of "2". Although discussed in terms of a counter and base value, in many embodiments, counter **156** may comprise two counters, with a first counter incremented for each hand or level completed; the second counter incremented for each level completed; and the first counter reset to the value of the second counter upon drawing a new hand.

In another embodiment or game play mode, referred to as a "blitz" mode, the match game **120** may comprise a play timer (not illustrated) of a predetermined number of seconds, such as 30, 60, 120 seconds or any other value. Upon expiration of the play timer, the game may end and/or proceed to a bonus spin, discussed in more detail below. This may provide for short, intense or exciting game play. In one embodiment, the play timer may be incremented by a number of seconds if the player successfully uses every token in array **204** as discussed above. For example, in one such embodiment, if the player utilizes every token in their hand, the play timer may be incremented by 10 seconds.

In some embodiments, a match game **120** may comprise a rules engine **158** for identifying matching adjacent tokens in a region **210** of array **202** and/or determining if a token should be removed or replaced. In some embodiments of a match game **120**, if a player creates a region **210** of adjacent matching tokens of less than a predetermined size by replacing a selected token in array **202** with a second token from array **204**, the second token (along with other tokens in region **210**) may be removed from array **202** and the empty spaces filled in as discussed above. In a further embodiment, if the player creates a region **210** of adjacent matching tokens of equal to or greater than the predetermined size, the match game **120** may replace the second token with a special token, which may have a distinctive appearance, such as a diamond gem, flashing pattern, or other identifier. Other tokens in region **210** may be removed, and spaces in array **202** filled in as discussed above, leaving the special token in place. Play may then continue. If, subsequently, the player creates a region **210** of adjacent matching special tokens, in some embodiments, the selected token may be replaced by a second special token, which may have another distinctive appearance, such as a key or other identifier. Play may then continue again. If, subsequently, the player creates a region **210** of adjacent matching second special tokens, in some embodiments, the level may be completed. Completing the level may result in removal of all tokens in array **202** (frequently with the player receiving a score for each token, which may be increased with a multiplier as discussed above with bonus counter **156**), and a new set of tokens selected to fill array **202**. In some embodiments, the game engine may increment the spin counter upon completing the level, resulting in an 'extra life' or extra round for the player.

For example, in one embodiment, a player may match 7 "regular" token in a first region **210** and receive a diamond gem in place of the selected token. The player may match another 7 regular tokens in a second region **210'** (conveniently next to or nearby region **210** in this example) and receive a second diamond gem (correspondingly next to or near the first diamond gem). The player may then create a third region **210"** with the diamond gems (either via a diamond gem in array **204** or a wildcard token which may be used to match any other tokens, discussed in more detail below), and receive a golden key in place of the selected token. Upon creating a region of adjacent matching golden keys (again, via a key in array **204** or wildcard token), the game may clear and refill array **202** with the player receiving points for each cleared token. In many embodiments, the score value for each diamond gem, key, or other special token may be higher than the score value for each regular or base token.

Match game **120** may include a score counter **160**. Score counter **160** may be a counter or string incremented to keep track of a player score during play. In many embodiments, the resulting score may be saved to a score database **162**, which may comprise a list of previous scores or a predetermined number of the highest scores (i.e. a high score list). In some embodiments, score database **162** may store a plurality of lists, including lists of high scores in specific game configurations (e.g. "large board" or "normal board"), global or regional high score lists received from a server, daily or weekly high score lists, or other such lists.

In some embodiments, a player's score may be shared with other players or friends via social networking services such as Facebook or Twitter, emailed to other players or friends, or communicated to a server for inclusion in global or regional high score lists via a network agent **164**. Network agent **164** may comprise an application, service, daemon, routine, API, or other executable logic for communicating with a server via a network, and may be provided by the operating system of the device. Network agent **164** may transmit and receive information including scores, game configurations, player identifiers, challenges, or other such information.

In some embodiments, a match game **120** may include a challenge generator **166**, and/or may receive challenges via a network agent **164** from a server or from other computing devices. A challenge may comprise a game configuration, including a board size, predetermined region size to generate a special token, number of rounds or spins, and a target score for the player to meet or exceed. Challenges may be generated daily, hourly, weekly, or at any other such interval. Challenge generator **166** may comprise an application, service, daemon, routine, or other executable logic, and may be executed by the player's computing device, by a server, or by another player's device. In the latter two implementations, challenges may be transmitted and received via network agent **164**, allowing a player to participate in a global or regional challenge, or allowing a player to challenge friends. In some embodiments, a player may manually create a challenge by specifying the game configuration, while in other embodiments, the challenge generator **166** may dynamically generate the game configuration according to one or more rules. In one such embodiment, each configuration variable may have an associated score and/or difficulty value, and the target score may be calculated responsive to each configuration variable. For example, the challenge generator **166** may randomly select a board size or size for array **204** and/or **202** from a predetermined plurality of board sizes, each having an associated value (e.g. 7×6 array=1, 8×7 array=1.2, etc.); may randomly select a number of base tokens, with a corresponding value (e.g. 5 tokens=1, 6 tokens=0.8, 7 tokens=0.6, etc.); may randomly select a predetermined region size to generate a special token (e.g. region size 6=1, region size 7=0.5, region size 8=0.2, etc.); and may randomly select a number of spins with an associated value (e.g. 10 spins=1, 15 spins=2, 20 spins=3, etc.). The challenge generator **166** may then calculate a target score as a base score multiplied by each value associated with a variable. For example, and using the exemplary values above and a base score of 100,000, given a challenge of an 8×7 array with 6 tokens, region size 7, and 15 spins, the target score may be 120,000. The associated values for each variable may be set responsive to the corresponding difficulty associated with each variable: more spins may be easier, resulting in a higher target score; a greater variety of tokens may be more difficult to match, resulting in a lower target score. Accordingly, although the challenges may differ wildly in board size, number of spins, types of tokens, game play parameters, and target score, each challenge may be roughly equal in difficulty for the player. One of skill in the art may readily appreciate that the exemplary values above are presented for descriptive purposes only, and as such, are selected to make the exemplary mathematics easy. In practice, the values associated with each variable may be much different, and may be set by the developer responsive to play testing for consistent difficulty through successive challenges. In a similar embodiment, rather than using multipliers, specific score values may be used (e.g. utilizing 5 tokens adds 300,000 to the base score, while utilizing 6 tokens adds 200,000 to the base score, etc.). In other embodiments, the match game may include a series of predetermined levels with different features, such as board size, number of spins, types of tokens, target scores, game play parameters, etc. In some such embodiments, the player may be required to complete one or more levels (through one or more attempts) before allowing to progress to a successive level or series of levels.

Referring now to FIG. **3**, illustrated is a flow chart of an embodiment of a method **300** for executing a token match game. At step **302**, the game engine may generate and fill an m×l array or playing field with randomly selected tokens. The values of m and l may be set automatically to a default, may be set by the player when configuring a custom game, may be selected by the player from a plurality of predetermined defaults or game types, or may be set by a challenge engine as discussed above. Similarly, the tokens may be randomly selected from a list of possible tokens, or may be randomly selected from a subset of this list, such as a subset including base tokens and not including wildcard tokens or special tokens. In an initial iteration of method **300**, the m×l array may be empty and may be completely filled by selecting random tokens. In later iterations during game play, the game engine may fill empty cells in the array at step **302** with randomly selected tokens. Filling empty cells may, in many embodiments, comprise shifting tokens in cells adjacent to empty cells into the empty cells, and repeating this shifting until the empty cells are at an edge of the array, at which point they may be filled with randomly selected tokens. Although discussed as starting at step **302**, in some embodiments, method **300** may begin at another point, such as step **310**, step **312**, or step **314**, discussed below.

At step **304**, in some embodiments, the game engine may determine if any matches are possible with tokens in a second n×l array or hand. Determining if a match is possible may comprise scanning each row or column of the m×l array iteratively to identify whether a region of identical adjacent tokens of a predetermined size may be created if a token in a cell in the row or column is replaced with a token in a corresponding cell of the n×l array. As discussed above, a row or column may be scanned responsive to orientation of the n×l array to the m×l array. The predetermined size of the region may be a default value or may be set according to difficulty, a custom setting, a challenge, or any other such method as discussed above. In an initial iteration of method **300**, the n×l array may be empty, so accordingly no match is possible. Thus, in some implementations, step **304** may be skipped during an initial iteration and the method may proceed directly to step **310**, step **312**, or step **314** discussed below. In later iterations, step **304** may be used to determine if the player has any moves available.

If no match is possible at step **304**, then at step **306**, the game engine determines whether the player has any more spins or rounds of play remaining. As discussed above, the game engine may maintain a spin counter which may be decremented (or conversely, incremented towards a final value) with each spin or round and fill of the n×l array. In an initial play of the game, step **306** may be skipped, as the player will have at least one spin or round remaining.

If the player has no more spins or rounds remaining, then at step **308** in some implementations, the game engine may provide a bonus wheel. A bonus wheel may comprise a wheel, spinner, or other random selection element for providing a player with a random bonus or, in some embodiments, a random penalty. Although referred to as a wheel, in many implementations, other interfaces may be presented, including face down cards with random bonuses and/or penalties to be selected by the player, slot machine-type windows, icons, or any other such interface. In some embodiments, the player may be presented with an option to spin the wheel or other interface to attempt to receive a random bonus or penalty, or may opt out and end the game. This may be used in instances where the player may wish to avoid a potential penalty. Bonuses may include score increases by a value and/or percentage, fortunes, and/or one or more additional spins or rounds of play. Penalties may include score decreases by a value and/or a percentage, curses, or other penalties. If the player receives additional spins or rounds, then the method may resume with step **310**.

At step **310**, if the player has more spins or rounds remaining, then in some embodiments, the game engine may present a spin button or lever. In one implementation, the spin lever may be presented as a slot machine-style or "one-armed bandit" lever. In other implementations, the game engine may present a button, switch, slide, or any other interface element. In one embodiment during an initial iteration of method **300**, step **310** may be skipped and the first hand may be automatically drawn for the player.

At step **312**, responsive to the player activating the spin lever or otherwise requesting a new hand (or automatically in implementations in which step **310** is skipped), the spin counter may be decremented (or incremented in embodiments in which the counter counts up to a terminal value). At step **314**, the game engine may fill the n×l array with tokens. In one embodiment, the tokens may be randomly selected from the entire list of tokens, including wildcards and/or special tokens, while in another embodiment, the token may be randomly selected from a subset of the tokens. In some embodiments, the subset of the tokens may comprise tokens currently in play in the m×l array, and may further include a wildcard token. For example, in one such embodiment, if the m×l array includes only base tokens and no special tokens, the subset may include only the base tokens and wildcard tokens. If the m×l array includes a special token, such as a diamond gem, the special token may be added to the subset. This enables a player to create regions of adjacent special tokens, but avoids including the special tokens if others are not currently in play, to avoid frustrating the player with unplayable tokens. After step **314**, in some embodiments of method **300**, the game engine may repeat step **302**. In a first iteration of method **300**, this may be unnecessary, as the game engine may have already filled the m×l array, and accordingly, in some embodiments, step **302** may be skipped. In other embodiments of method **300**, method **300** may begin at another point, such as step **310**, step **312**, or step **314**, and step **302** may be performed.

Step **304** may be repeated as shown to determine if a region of adjacent identical tokens may be generated in the m×l array by replacing a token with a corresponding token of the n×l array. If not, then steps **306-314** may be repeated. If so, then at step **316**, the game engine may wait for and receive a player selection of a cell within the m×l array, referred to as cell m_i, l_j. Player selection of the cell may be via a touchscreen, such as touching the cell, or may be via a cursor or mouse click, text entry, gesture, or other input method.

At step **318**, the game engine may determine if replacing the token in cell at m_i, l_j with a token in the corresponding cell n_i, l_j of the n×l array may result in a region of adjacent identical tokens of at least a predetermined size. In many embodiments, the size of n may be 1, such that the value i may be ignored. In other embodiments, the size of n may be equal to m with a token in the n×l array corresponding to every token in the m×l array. In still other embodiments, n may be a factor of m such that each token in the n×l array may correspond to some, but not all tokens in the corresponding row or column of the m×l array. For example, m may be 6 and n may be 2, with n_i corresponding to m_{1-3} and n_2 corresponding to m_{4-6}. As such, one may readily appreciate that the corresponding cell n_i, l_j may have a different value of i in some embodiments. The game engine may use any method to identify and determine the size of potential regions of identical tokens, including flood-fill algorithms, filling a second m×l array with the n_i, l_j token and calculating a conjunction of the arrays, performing a breadth-first or depth-first search for identical tokens around the selected cell m_i, l_j, or any other method. In some embodiments in which the token in cell n_i, l_j is a wildcard token, the game engine may use a variable in the search methods or otherwise allow the wildcard token to match any other token in array m×l.

If the game engine does not determine that a match or region will be generated, then at step **320**, the game may indicate that the selection is invalid. This may include flashing an interface element, outputting a sound, showing a pop-up message, or any other indicator. In some embodiments, if cell n_i, l_j is empty (such as if the token in that cell has already been used), then the game engine may skip step **318** and go directly to step **320**.

In some embodiments, if the player has not made a valid selection within a predetermined time period, the game engine may display a hint or indicate a potentially valid selection within the m×l array, such as arrows or a flashing border around a cell or any other such indication.

If the game engine determines that a region will be generated if the token in cell n_i, l_j is placed in the selected cell, then at step **322**, the replacement may be performed. The game engine may identify the created region of adjacent identical tokens and may remove the tokens and increment the player's score accordingly, as discussed above. In some embodiments, if the region is greater than a predetermined size, the game engine may place a special token, such as a diamond gem, in the cell m_i, l_j after removing the tokens. In another embodiment, if the matched tokens are the special token, the game engine may place a second special token, such as a wildcard token, in the cell m_i, l_j after removing the tokens. In a further embodiment, if the player subsequently selects and generates a region of adjacent identical tokens of a first type (e.g. a base token) that includes or is adjacent to the second special token, the game engine may remove all of the tokens of the first type in the m×l array, regardless of position, and increment the player's score accordingly. The game engine may then place a third special token, such as a golden key, in the cell m_i, l_j after removing the tokens. In another embodiment, if the player subsequently selects and generates a region of adjacent identical tokens of the third special token type, the game engine may clear the m×l array, incrementing the player's score for each token removed, and skip to step **326**, discussed below. This may be referred to as finishing the level or gaining a level, and a bonus counter (and/or permanent bonus counter or base level for the counter) may be incremented, as discussed above.

At step **324**, the game engine may determine if the n×l array or player's hand is empty. If not, then method **300** may continue with step **302**, filling in any empty spaces in the m×l array resulting from the removal of tokens at step **322** as discussed above. If so, at step **326**, then the game engine may increment a bonus counter as discussed above and may repeat step **314** before continuing with step **302**. This may be referred to as finishing a hand.

As shown, method **300** may be iteratively repeated with the player playing tokens from his or her hand in the playing field to generate matches and special tokens, and/or failing to match tokens and requesting a spin or new hand, until the player runs out of spins or rounds, optionally spinning the bonus wheel at step **308**.

As discussed above, in some game play modes or embodiments, sometimes referred to as "blitz" mode, the game engine may execute a play timer of a predetermined duration. If the play timer expires, play may end and the game engine may proceed to step **308**. In some embodiments, if the player utilizes every token in the n×l array, then at step **326**, the play timer may be incremented by a predetermined amount of time, such as 5 seconds, 10 seconds, 15 seconds, or any other value, to provide an extended period for play. In other embodiments, the game may end upon completion of a predetermined goal, such as a number of tokens matched, a score reached, or any other such feature. In one such embodiment, upon completion of a level, a bonus score may be awarded to the player. In a further such embodiment, the game engine may fill the n×l array with one or more "wild" tokens which may be used to match any other tokens at step **318**. In a still further such embodiment, the game engine may automatically play through iterations of method **300** with the wild tokens until the n×l array is empty, skipping from step **324** to step **308** and/or a game end screen. Such embodiments may be referred to as having a jackpot or bonus round.

Referring now to FIGS. **4A-9C**, illustrated are screenshots of one example embodiment of a token match game. The screenshots are intended for explanatory purposes only, and are not intended to be limiting. Referring first to FIGS. **4A-4J**, illustrated are screenshots of menu, help, and configuration screens of an embodiment of a token match game. As shown in FIG. **4A**, a menu screen may include a high score board and buttons for starting a game, configuring settings, viewing medals, interacting with a social network, viewing a help screen, or logging in or registering as a player. As shown in FIG. **4B**, various options may be set by the player, including whether hints are displayed after a predetermined time period of no player selection of a valid cell, and volume settings. As shown in FIGS. **4C** and **4D**, various awards may be awarded to the player for fulfilling one or more conditions, such as scoring a predetermined number of points in a game or playing a number of games. In one embodiment, unachieved awards may be shown with a lock symbol or other indicator. As shown in FIG. **4E**, the player may share scores and/or challenge others via one or more social networks or messaging methods, or may copy the last game's final score to paste into another application.

FIGS. **4F** and **4G** illustrate screens of an exemplary help display. As shown in FIG. **4F**, the help display may be shown as a bubble or overlay on the menu or another screen. FIG. **4G** illustrates a sequence of exemplary help screens.

In some embodiments, the player may select a button to view player statistics and/or change the player's identified name or reset the statistics, as shown in FIG. **4H** and in the sign-in dialog of FIG. **4I**.

As shown in FIG. **4J**, the player may be presented with a challenge that may be dynamically generated by a challenge engine of the game, may be received as a challenge from a friend or another player, or may be received from a server. The challenge may identify a target score and one or more parameters, as shown.

FIGS. **5A-5C** are screenshots of a sequence of an example embodiment of successive steps of token selection, replacement, and scoring in an embodiment of a token match game. As shown in FIG. **5A**, a spin lever may be presented to the player, and the player may pull or trigger the lever to fill the cells of the n×l array (i.e. the row of six empty cells in FIG. **5A**) with randomly selected tokens as shown in FIG. **5B**. The tokens may be selected from a subset of tokens including the tokens in the m×l array, and may include a wildcard token as shown in the rightmost cell of the n×l array.

If the player selects the triangular token in the 5th column in the m×l array, the game engine may replace the token with the diamond-shaped token (not to be confused with a special token, an example of which is shown in FIG. **6A** in the 4th column of the m×l array) in the corresponding column of the n×l array to generate a region of six adjacent matching diamond-shaped tokens. As shown in the screenshot of FIG. **5C**, these tokens may be removed and the player's score incremented and the m×l array may be filled by moving down tokens from higher rows in the array and selecting new random tokens to fill the resulting empty cells.

FIGS. **6A-6C** are screenshots illustrating successive steps of utilization of a wildcard within a created region of identical tokens in an embodiment of a token match game. As shown, in some embodiments, the m×l array may include special tokens, such as the diamond in the 4th column, or the "Special" or wildcard token in the 2nd column (marked with an "S"). If the player selects the first column, second row hexagonal token in the m×l array, a region may be created of the pentagonal tokens that includes the "Special" token. As shown in FIG. **6B**, the game engine may remove all of the pentagonal tokens and replace the first column, second row token with a third special token or golden key. The m×l array may then be filled, as shown in FIG. **6C**. In some implementations, the wildcard token may be referred to as a "splash" or wild token, and may have various types of effects. For example, in one implementation, creating or matching a region that includes the wild token may result in removal of all of the gems matching the tokens in the region, regardless of their position in the m×l array, as discussed above. In another implementation, creating or matching a region that includes the wild token may result in removal of all tokens in the m×l array in a horizontal or vertical line with the wild token. Such wild tokens may be referred to as "horizontal splash" and "vertical splash" tokens, respectively. In yet another implementation, creating or matching a region that includes the wild token may result in removal of all tokens in the m×l array adjacent to the wild token (i.e. any tokens above, below, to the side of, or diagonally adjacent to, the wild token). Such wild tokens may be referred to as "area splash" tokens.

In some implementations, wild tokens and/or splash tokens may be selected by the token generator and/or rules engine responsive to the player matching a region of predetermined size. For example, in one implementation, if the player replaces a token in the m×l array to create a region of identical tokens including seven tokens, after removing the tokens in the region, the rules engine may place a wild token at the cell selected by the user. This may encourage the player to strategically plan and create larger regions during game play. In other implementations, wild tokens and/or splash tokens may be selected by the token generator during filling of the m×l array.

FIGS. **7**A-**7**C are screenshots illustrating successive steps of matching tokens to clear a board in an embodiment of a token match game. As shown, the m×l array may include two or more of the third special token or golden key. The player may play a wildcard token (second column in the n×l array) in the cell between the two special tokens in the m×l array as shown in FIG. **7**B. The game engine may remove all of the tokens in the m×l array and increment the player's score. The screenshot captures an intermediate step in the animation of this process, with only some of the scores displayed filling in from left to right. In other embodiments, the scores may be displayed all at once, or fill in from a different direction. As shown, in many embodiments, the player may receive a higher score for clearing a special token than for clearing a regular or "base" token. As shown in FIG. **7**C, the m×l array may then be filled in with new randomly selected tokens.

FIGS. **8**A-**8**K are screenshots of help screens of an embodiment of a token match game. As shown, the help screens may be displayed as a bubble or pop-up over the playing field. As discussed above, in some embodiments, after the player runs out of spins, rounds, or lives, a bonus wheel or similar interface may be presented to the user with bonuses and/or penalties. FIGS. **9**A-**9**C are successive screenshots of a bonus wheel of an embodiment of a token match game. As shown, the player may choose to spin the wheel and receive a random bonus or penalty, which may include additional spins or rounds of play, returning to gameplay (in this instance, a "spin" refers not to the bonus wheel, but to receiving new tokens for the n×l array).

FIGS. **10**A and **10**B are screenshots of embodiments of screens presented upon completion of a token match game. As shown in FIG. **10**A, the player's score may be shown and the player may be given an option to play again, share the score, challenge a friend, or return to the menu. Additionally as shown in FIG. **10**A, if the player was participating in a challenge, a target score or goal may be displayed, along with an indication of whether the player achieved the goal. As shown in FIG. **10**B, if the player met a condition for an award, the award may be displayed to the player.

FIGS. **11**A and **11**B are screenshots of embodiments of a level selection screen for a token match game. As discussed above, in some embodiments, rather than utilizing a timer-based or challenge-based game, the game may comprise a series of levels to be completed by the player as a "quest". In some implementations, a level selection screen may be provided to the player, allowing the player to select a next uncompleted level or select any previously completed level to replay, for example, to attempt to increase a score over a previous attempt at said level. As shown in FIG. **11**A, a level selection screen **1100** may comprise one or more identifiers **1108***a*-**1108***d* of levels (referred to generally as level identifier(s) **1108**). Although shown as icons on a trail, in many implementations, level identifiers **108** may be displayed in a scrollable list, a tree, a chain, or any other such structure. As shown in FIG. **11**D, the level selection screen **1100'** may include a greater number of level identifiers (e.g. **1108***e*-**1108***i*), or a fewer number of level identifiers, depending on spacing of the identifiers or other such design considerations. In some implementations as shown in FIG. **11**B, previously completed levels may be shown with a score or completion indicator, such as a number of stars as shown. For example, in one such implementation, a level may have a series of goals, such as scoring 100,000 points, scoring 300,000 points, and scoring 500,000 points. The player may be awarded with a star for each goal attained, which may then be displayed in the level selection screen **1100'** as shown.

Level selection screen **1100** may include one or more scroll buttons **1110***a*-**1110***b*, scroll bars (not illustrated), or other user interface elements to allow the user to view and select level identifiers **1108**, including those not immediately visible on a level selection screen. In other embodiments, the user may be able to scroll the level selection screen via a keyboard, mouse, or gesture on a touch-based input device.

A level selection screen **1100** may include a life or attempt meter **1102**, which, in many embodiments, may display a counter of remaining attempts. In some embodiments, a player may be provided with a limited number of attempts to complete levels or challenges. Each time the player fails to complete the challenge or level, the attempt meter may be decremented. Upon the attempt meter reaching 0, in some embodiments, the player may be prevented from playing a round of the game, until either a predetermined time period has passed, additional attempts are purchased, additional attempts are gifted by another player (e.g. via a social networking interface), or any other such limitations or other tasks are performed. For example, in one implementation, a new attempt or set of attempts may be granted every 15 minutes. If the player has utilized all of the allotted attempts prior to the expiration of the time period, the player may be provided an opportunity to purchase one or more attempts via an in-application purchase system or purchase system via a web page or other interface. Players may also purchase and gift attempts to others, and/or beg or request others for attempts to be gifted.

A level selection screen **1100** may include a settings icon **1104**. Settings icon **1104** may be selected by a player to access a settings screen, which may provide volume controls for sound effects or music, brightness controls, access to or editing of a social network profile, or any other such features. In some embodiments, a level selection screen **1100** may include a menu button **1106** for return to an initial screen. The initial screen may allow access to different game types, such as a quest, blitz, or challenge mode, as discussed above, or other features.

FIG. **12**A is a screenshot **1200** of an embodiment of a level in a token match game incorporating tokens of different types or classes in an m×l array **1202** and n×l array **1204**. As shown, tokens may include a standard token **1206**, such as a jewel or other geometric shape, icon or picture such as a type of candy or animal, or any other such token. Tokens may also include one or more "breakable" token types, such as a crate or wooden token **1208**, a cage or jail token **1210**, and/or a stone token **1212**. In some implementations, a "breakable" token may not be matched by a token in the n×l array **1204**; instead, the token may be "broken" (e.g. removed or otherwise adjusted) responsive to matching and removal of a region adjacent to the token. For example, in one such implementation, if a series of tokens adjacent to a wooden token **1208** are removed, the wooden token **1208** may also be removed. The cell previously containing the wooden token **1208** may be filled normally, as discussed above. In a similar implementation, a series of regions adjacent to a breakable token may need to be matched and removed before the breakable token is removed. For example, while a wooden token **1208** may be removed after matching of a single adjacent region, a stone token **1210** may require matching of two or more adjacent regions in succession. In some implementations, after each intermediate match before removal, the token **1210** may be displayed in an altered form, such as with cracks or shading to indicate that the token **1210** has been partially matched or will be removed on a subsequent match.

In another similar implementation, if a series of tokens adjacent to a jail token **1212** are matched and removed, the jail token **1210** may be replaced with a standard token **1206** corresponding to the token displayed within the jail token **1212**. In other implementations, the standard token displayed within the jail token **1210** may be considered part of the region for purposes of matching. For example, if the game rules require matching at least three tokens in a region, the token displayed within the jail token **1212** may be considered to count as one of the three tokens; however, upon matching and removal of the tokens in said region, the jail token **1212** may be replaced with the standard token corresponding to the token displayed within the jail token **1212**. In another embodiment not illustrated, tokens similar to jail token **1212** may be implemented. For example, an ice token may display a standard token **1206** behind a layer of ice which must be broken, e.g. by matching an adjacent region one or more times. In another embodiment, a vine token may display a standard token **1206** behind a layer of vines or other growth. In a further embodiment, the vine token may “spread” over time: upon expiration of a predetermined amount of time or after one or more matches or selections by a player, one or more tokens adjacent to a vine token may be replaced with a vine token including the corresponding standard token. The player may be encouraged to play quickly to remove all of the vine tokens in the m×l array **1202** to prevent their further spread.

As shown in FIG. **12**A, in some implementations, a token match game may display a goal **1214** to be met to complete a level. For example, the goal may include a predetermined score to reach, a number of tokens to match, or any other such goal. In one implementation, the goal may display a number of squares in which tokens must be matched and/or removed. In many embodiments, the goal **1214** may be decremented or reduced as the player partially achieves the goal. In such embodiments, the goal **1214** may be referred to as a remaining goal, or by a similar term.

In many embodiments, the token match game may also display a score **1216** and/or number of spins or rounds remaining **1218**. In some embodiments, as discussed above in which a level has a series of goals to be attained, the intermediate goals may be displayed under the score **1216**. For example, the goals may comprise different scores for the player to reach, and be displayed as a series of stars on a progress bar.

In some implementations, the token match game may include one or more powers **1220** that may be selected for use by the player. Powers **1220**, discussed in more detail below, may provide the player with additional spins or rounds **1218**, wild tokens to match any token in the m×l array **1202**, the ability to move tokens within n×l array **1204**, or any other such functionality.

FIG. **12**B illustrates another screenshot **1200'** of an embodiment of a level of a token match game. In addition to standard tokens, and wooden tokens **1208**, in some embodiments, a match game may include other types of breakable tokens **1222** such as a boulder token. In some embodiments, a boulder token **1222** may be similar to a wooden token **1208**, being removed on matching of tokens in an adjacent region within the array. In one such embodiment, a wooden token **1208** may be fixed at a position within the array, such that upon removal and filling of tokens below the wooden token **1208** in the m×l array (e.g. during step **314** of method **300**), the wooden token **1208** does not move or is not shifted downwards. In a further such embodiment, a boulder token **1222** may be moved or shifted upon removal of tokens below the boulder token **1222**. For example, in the example shown in FIG. **12**B, upon removal of one of the boulder tokens **1222** (e.g. upon matching a region adjacent to the tokens at the base of the m×l array), the other boulder tokens **1222** may be moved or shifted downward, while the wooden tokens **1208** may remain in position. In the example level displayed, the goal includes removal of all of the boulder tokens **1222**: because the wooden tokens **1208** block the upper border of the m×l array, during filling of the array, new tokens may not be filled in above the boulder tokens **1222** after removal. This may prevent matching from above the boulders, requiring specific game play strategies. In a similar embodiment not illustrated, a player may be required to lower a token, such as a treasure chest token or similar token, to the bottom of the m×l array by matching and/or removing any tokens below the chest token. Upon reaching the bottom of the array, the rules engine may remove the chest token, increment the player’s score, decrement a goal counter, or perform other such functions.

As shown in FIG. **12**B, in many embodiments, the m×l array may not have tokens in every cell, or may be considered to have one or more “blank” cells **1224**. This may modify the shape of the playing area as shown, requiring different game play strategies. In one implementation, tokens may not move across the blank cells **1224** during filling of the array. In another implementation, such as where one or more standard cells are in the array above a blank cell **1224**, a token from above a blank cell **1224** may be moved to fill a cell below the blank cell **1224**, jumping the gap, during filling of the array.

FIG. **12**C is another screenshot **1200"** of an embodiment of a level of a token match game. As shown and as discussed above, one or more stone tokens **1210** may be placed within the m×l array and require removal as part of game play. In some embodiments, one or more non-breakable tokens **1228**, such as steel tokens, may be placed within the array and may not be removed or broken upon matching of tokens in adjacent regions. In some such embodiments, discussed in more detail below in connection with FIGS. **13**A-**13**B, to fill spaces in the m×l array after removal of tokens, tokens may be shifted in sideways or diagonal directions, such that the non-breakable tokens **1228** remain fixed.

FIG. **12**D is another screenshot **1200'** of an embodiment of a level of a token match game. In some embodiments, bomb or counter tokens **1230** may be placed within the m×l array. The bomb tokens **1230** may include a counter, set to predetermined and/or varying starting numbers. The counters may decrement, either periodically or upon one or more selections by a player during game play. In one such embodiment, upon any counter reaching zero, the game may end, or another penalty may be applied, such as loss of a spin or round, a score penalty, or other such result. In some embodiments as shown, each bomb token **1230** may display a standard token beneath the counter. The player may match the standard token as part of a matching region to remove the bomb token **1230**, allowing continuation of play.

FIG. **12**E is another screenshot **1200""** of an embodiment of a level of a token match game. As shown and as discussed above in connection with FIG. **12**B, blank cells may be used within the m×l array to change the shape of the playing field. In some embodiments, cells within the array may be marked, shaded, surrounded with a border, or otherwise designated as special cells **1232**. The player may be required to match tokens within the special cells **1232** one or more times to remove the marking or designation, and may be required to remove all of the special cell designations to complete the level. For example, as shown in the example embodiment of FIG. **12**E, the player may be required to remove all twenty marked or special squares **1232** to complete the level.

FIGS. **13**A-**13**B are successive screenshots **1300***a*-**1300***b* depicting an embodiment of a token match game with a falling token mechanism, as discussed above. In a first example move, a player may select token **1302** in the m×l array to replace the token **1302** with token **1304** from the n×l array, matching and removing the two adjacent green square tokens. Wooden tokens **1306***a*-**1306***b* may be "broken" or removed as a result of being adjacent to the matched region. During filling of the array, because of the stone and wooden tokens above token **1302**, tokens may not be shifted directly downwards. Rather, as shown in FIG. **13**B, token **1308***a* may be shifted directly downwards to fill the empty cell left by wooden token **1306***b*. Token **1308***b* may be shifted diagonally to the left twice, to fill the empty cell left by wooden token **1306***a*. Token **1308***c* may be shifted diagonally to the left twice to stop on top of token **1308***a*. Other tokens above and to the right of **1308***c* may be filled in from the top of the m×l array as shown. This may result in one or more unfilled cells, as shown in FIG. **13**B, creating potential gameplay obstacles.

FIGS. **14**A-**14**B are embodiments of icons for powers, boosts, bonuses for a token match game. In some embodiments, powers, boosts, and/or bonuses may purchased during and/or before game play to provide additional game play features. These features may, in many embodiments, be triggered by the player, such as via selection of a power icon **1220** in FIG. **12**A. In other embodiments, the features may be triggered automatically by the rules engine and/or game engine. For example, referring first to FIG. **14**A, illustrated are icons **1400**-**1408** representing boosts that may be selected prior to game play and triggered by the rules engine and/or game engine. For example, icon **1400**, labeled "spin fairy", represents a boost that may be selected by a player prior to game play and instructs the rules engine to, in instances where a last token is in the n×l array that cannot be matched to any corresponding cell in the m×l array to form a matching region, remove the last token from the n×l array. This results in an empty n×l array, triggering incrementing of a bonus counter and refilling of the n×l array, as discussed above in connection with steps **324**, **326**, and **314** of FIG. **3**. In some embodiments, the spin fairy boost may instruct the rules engine to remove the last token in the n×l array one time, two times, three times, or any other number of times.

Similarly, icon **402** may, in some embodiments, represent a "wild" boost that may instruct the token generator to increase the rate at which wild tokens, able to match any standard token, are selected for the n×l array. Icon **404** may, in some embodiments, represent a "multiplier" boost that may instruct the rules engine to increment the bonus counter prior to beginning game play, as discussed above in connection with step **326** of FIG. **3**. Icon **1406**, labeled "splash", may represent a boost that may instruct the token generator to provide one or more splash tokens in the m×l array at the start of the game, such as horizontal, vertical, or area splash tokens discussed above in connection with FIG. **6**C. Icon **1408**, labeled "easy splash", may represent a boost that may instruct the token generator to select splash tokens responsive to matching a smaller region size than during a typical game. For example, as discussed above in connection with FIG. **6**A, a wild token may be placed by the rules engine in the m×l array responsive to the player matching a region of a predetermined size, such as one containing seven tokens. Selection of the easy splash boost may instruct the rules engine to place wild tokens responsive to the player matching a region of a smaller size, such as one containing five or six tokens.

FIG. **14**B illustrates embodiments of icons representing powers which may be triggered by a player during game play, such as icons **1220** of FIG. **12**A discussed above. For example, selection of icon **1410**, referred to as a "shifter" icon, may allow the player to move any token in the n×l array to another position in the n×l array, by dragging the token or by first selecting the token to move and then by selecting a destination for the token. In instances where the destination cell includes a token, in some embodiments, the tokens may be swapped, while in other embodiments, the token in the destination cell may be replaced by the selected token.

In some embodiments, selection of icon **1412**, referred to as an "extra spin" icon, may instruct the rules engine to increment a spin or round counter by a predetermined number, such as one spin, two spins, three spins, or any other number. In some embodiments, selection of icon **1414**, referred to as a "wild" icon, may allow the player to select any standard token in the m×l array and remove all other identical tokens from the m×l array, as if the player had created a region of said tokens including a wild token, as discussed above in connection with FIG. **6**A.

In many implementations, one or more of boosts **1400**-**1408** and/or powers **1410**-**1414** may be unlocked upon the player completing and/or reaching a designated level. For example, in one such implementation, a player may not have access to any boosts or powers on a first level, and may unlock a first power upon reaching a predetermined level, such as level ten. In many implementations, the player may be required to purchase a boost and/or power prior to use. For example, responsive to a selection of a boost or power, the player may be presented with a purchase screen, discussed in more detail below, and must complete a purchase prior to being allowed to trigger the boost or power.

FIG. **14**C illustrates embodiments of icons for displaying or performing various functions on a life meter for an embodiment of a token match game. As discussed above in connection with life or attempt meter **1102** of FIG. **11**A, icon **1416** may be displayed with a counter representing a number of lives or attempts to complete a level allowed to the player. The player may be provided with an opportunity to purchase additional attempts or lives, such as when the player has run out of attempts. In some such implementations, icon **1416** may be replaced with icon **1418**, or icon **1418** may be displayed in a purchase screen to indicate that the player may purchase additional lives or attempts. Similarly, upon running out of attempts or lives after failure to complete a level, icon **1416** may be replaced with icon **1420**. For example, icon **1420** may be displayed in place of an attempt meter **1102** as in FIG. **11**A. The user may select the icon to initiate a dialog to purchase additional lives. Icon **1422** may be used to identify a user selectable interface element to send or gift lives or attempts to another player of the game. In some embodiments, icon **1424** may be displayed in place of icon **1416**, for example, as the attempt meter **1102** of FIG. **11**A.

FIG. **15**A is a screenshot of an embodiment of a level information screen **1500***a* for a token match game. In some embodiments, the level information screen **1500***a* may be displayed after a player has selected a level, and may include a name and identifier of the level, indicators **1502** of a previously completed goal of the level (or lack of a previously completed goal, as shown), and/or an identifier of a goal of the level **1504**. In some embodiments, the level information screen **1500***a* may include one or more icons **1506** representing boosts that the player may purchase or select to be applied to game play, as discussed above. The level information screen **1500***a* may also include a user interface element **1508** to begin playing the level, and/or a element **1510** to connect to a social network. Connecting to a social network may allow the player to send/receive gifts from other players in the social network, such as lives or attempts, bonuses, powers, boosts, or other such items; compare scores or level goals with others; and/or provide or receive challenges from other players.

In one embodiment, as discussed above, a player may purchase a boost to be applied to game play of a level by selecting an icon **1506** during display of a level information screen **1500***a*. FIG. **15**B is a screenshot of an embodiment of a boost purchase screen **1500***b* for a token match game. As shown, the boost purchase screen **1500***b* may include an identifier or description **1520** of a boost, and may include a user interface element **1522**, such as a button, to purchase the boost. Purchases may be performed as an in-application purchase, purchase via a separate web page or other application, or via any other such means.

Similarly, as discussed above, during game play, a user may select a power via an icon **1410-1414** as shown in FIG. **14**B or one of icons **1220** as shown in FIG. **12**A. FIG. **15**C is a screenshot of an embodiment of a power purchase screen **1500***b*' for a token match game. As with purchase screen **1500***b*, the power purchase screen **1500***b* may include an identifier or description **1520'** of a power, and may include a user interface element **1522'**, such as a button, to purchase the power. Once purchased, an icon **1410-1414** or **1220** may be highlighted or displayed with a border, glow, or counter to indicate that the player has purchased the power and may trigger the power during game play.

Although discussed in terms of purchases, in some implementations, other methods may be used to obtain powers and/or boosts. For example, powers or boosts may be obtained by successful completion of goals during a level (e.g. a boost or power may be enabled for a next level, responsive to a user attaining three stars during a previous level), or by performing one or more tasks, such as completing a challenge or challenging another player, reaching a high score, lowering a chest token to the bottom of an m×l array, etc.

FIG. **16** is a screenshot of an embodiment of a level completion screen **1600** for a token match game. The level completion screen **1600** may include an identifier and/or name of the level, an identifier of the goals of the level, and/or an indication of goals achieved **1602** and/or a score obtained **1604**. In some embodiments, a level completion screen **1600** may include an identification of a top score **1606** and/or an indicator that the player attained the top score **1606**. Level completion screen **1600** may also include one or more user interface elements, such as buttons **1608**, for allowing the player to select to retry the level, select a next level or different level (e.g. from a level selection screen, as discussed above), and/or allowing the player to brag by sending an email, text or multimedia message, in-game message, and/or message on a social network to a friend or other player. Such messages may, in some implementations, include a challenge or link to allow the recipient to initiate play of the same level, a game with the same goal, or a challenge game based on the level with a goal equal to the sender's score. In some embodiments, the level completion screen **1600** may include an interface element **1610** for connecting to a social network, as discussed above.

While the invention is particularly shown and described with reference to specific embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention described in this disclosure.

What is claimed:

1. A method for a token match game, comprising:

generating, by a token generator executed by a processor of a computing device, an m×l array of randomly selected tokens, the m×l array stored in a first location in a memory device of the computing device;

generating, by the token generator, an n×l array of randomly selected tokens, the n×l array stored in a second location in the memory device;

subsequently receiving, by a rules engine executed by the processor, a selection by a user of the computing device via an input device coupled to the computing device, of a cell within the m×l array;

determining, responsive to receiving the selection of the cell within the m×l array, by the rules engine, that replacement of a first token in the selected cell within the m×l array with a second token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array via comparison of an identifier stored in the second location in the memory device to identifiers stored at positions adjacent to a corresponding position in the first location in the memory device; and

editing the m×l array stored in the first location of the memory device to remove, by the rules engine, the tokens of the region of adjacent identical tokens within the m×l array, responsive to the determination.

2. The method of claim **1**, further comprising incrementing a score for a user, by the rules engine, responsive to removal of the tokens of the region of adjacent identical tokens within the m×l array.

3. The method of claim **1**, further comprising generating, by the token generator, a number of additional tokens corresponding to the number of removed tokens of the region of adjacent identical tokens within the m×l array, the generated additional tokens stored in an empty portion of the first location of the memory device.

4. The method of claim **1**, further comprising:

iteratively shifting a token in the m×l array into an adjacent cell not including a token until at least one cell at the edge of the m×l array does not include a token; and

generating, by the token generator, at least one new token for the corresponding at least one cell, the generated at least one new token stored in an empty portion of the first location of the memory device.

5. The method of claim **1**, further comprising:

identifying, by the rules engine, that a token adjacent to the region of adjacent identical tokens within the m×l array is a wild token; and

editing the m×l array stored in the first location of the memory device to remove, by the rules engine, the wild token and at least one additional token from the m×l array identical to the first token, but not adjacent to the region of adjacent identical tokens.

6. The method of claim **1**, further comprising:

identifying, by the rules engine, that no replacement of a third token in a cell within the m×l array with a fourth token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array; and

generating, by the token generator, a second n×l array of randomly selected tokens, responsive to the identification.

7. The method of claim **6**, wherein providing the second n×l array of randomly selected tokens further comprises:

rendering an interface element for display to the user via an output device coupled to the computing device;

receiving a selection of the interface element by the user via the input device coupled to the computing device; and

generating the second n×l array of randomly selected tokens, responsive to the selection of the interface element by the user.

8. The method of claim **7**, wherein the interface element is a lever.

9. The method of claim **6**, wherein generating the second n×l array of randomly selected tokens further comprises replacing a previous n×l array stored at the second location in the memory device.

10. The method of claim **6**, wherein generating the second n×l array of randomly selected tokens further comprises decrementing a hand counter.

11. A system for a token match game, comprising:

a computing device comprising a memory device and a processor executing a token generator and a rules engine stored in the memory device, the computing device coupled to an input device;

wherein the token generator is configured for:

generating an m×l array of randomly selected tokens, the m×l array stored in a first location in the memory device, and

generating an n×l array of randomly selected tokens, the n×l array stored in a second location in the memory device; and

wherein the rules engine is configured for:

subsequently receiving a selection, by a user of the computing device via the input device, of a cell within the m×l array,

determining, responsive to receiving the selection of the cell within the m×l array, that replacement of a first token in the selected cell within the m×l array with a second token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array via comparison of an identifier stored in the second location in the memory device to identifiers stored at positions adjacent to a corresponding position in the first location in the memory device, and

editing the m×l array stored in the first location of the memory device to remove the tokens of the region of adjacent identical tokens within the m×l array, responsive to the determination.

12. The system of claim **11**, wherein the rules engine is further configured for incrementing a score for a user, responsive to removal of the tokens of the region of adjacent identical tokens within the m×l array.

13. The system of claim **11**, wherein the token generator is further configured for generating a number of additional tokens corresponding to the number of removed tokens of the region of adjacent identical tokens within the m×l array, the generated additional tokens stored in an empty portion of the first location of the memory device.

14. The system of claim **11**, wherein the rules engine is further configured for iteratively shifting a token in the m×l array into an adjacent cell not including a token until at least one cell at the edge of the m×l array does not include a token; and

wherein the token generator is further configured for generating at least one new token for the corresponding at least one cell, the generated at least one new token stored in an empty portion of the first location of the memory device.

15. The system of claim **11**, wherein the rules engine is further configured for:

identifying that a token adjacent to the region of adjacent identical tokens within the m×l array is a wild token; and

editing the m×l array stored in the first location of the memory device to remove the wild token and at least one additional token from the m×l array identical to the first token, but not adjacent to the region of adjacent identical tokens.

16. The system of claim **11**, wherein the rules engine is further configured for identifying that no replacement of a third token in a cell within the m×l array with a fourth token from a corresponding cell of the n×l array results in a region of adjacent identical tokens within the m×l array; and

wherein the token generator is further configured for generating a second n×l array of randomly selected tokens, responsive to the identification.

17. The system of claim **16**, wherein the computing device is further coupled to an output device, and wherein the rules engine is further configured for rendering an interface element for display to the user via the output device, and receiving a selection of the interface element by the user via the input device coupled to the computing device; and

wherein the token generator is further configured for generating the second n×l array of randomly selected tokens, responsive to the selection of the interface element by the user.

18. The system of claim **17**, wherein the interface element is a lever.

19. The system of claim **16**, wherein the token generator is further configured for generating the second n×l array of randomly selected tokens by replacing a previous n×l array stored at the second location in the memory device.

20. The system of claim **16**, wherein the rules engine is further configured for decrementing a hand counter, responsive to the token generator generating the second n×l array of randomly selected tokens.

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